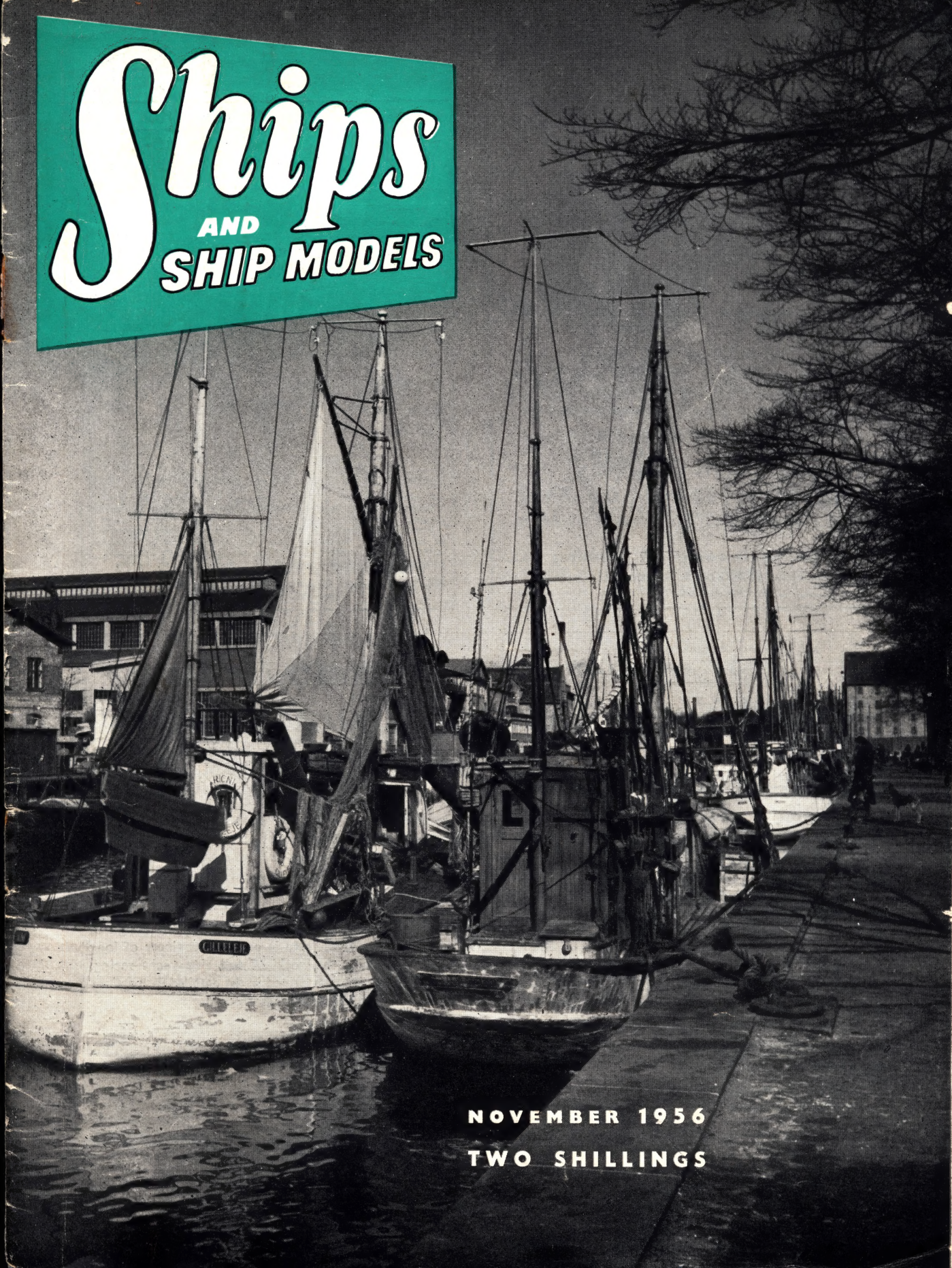
Ships AND SHIP MODELS



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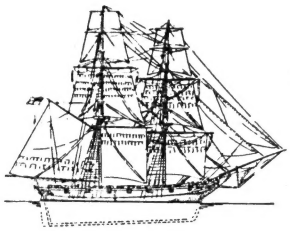

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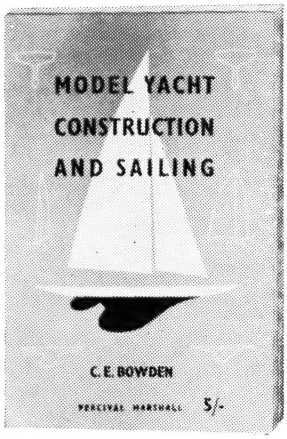

by Lt.-Colonel C. E. BOWDEN, A.I.MECH.E.

Lt.-Col. Bowden explains the principles of design and construction of model and small racing craft in the light of modern knowledge of aerodynamics and hydrodynamics. He writes: "*It is not always realised that sail and power craft are closely interrelated to the aerodynamics of the aeroplane, and the old idea of the sail being just a sheet or an area that is blown upon by the winds is rapidly dying out. Over three times greater drive can be obtained from the sail if we understand how to obtain it.*" The author explains how these principles can be applied to the design of models in this essentially practical handbook. He is a model engineer of long experience who is also very well known in the world of full size yacht racing. The knowledge gained from both worlds is incorporated in the detailed instructions given, supported by numerous photographs and drawings.

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Ships AND SHIP MODELS

INCORPORATING MODEL SHIPS & POWER BOATS

Vol. IX. No. 106. NOVEMBER 1956

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COVER PICTURE

Reader Ole Gottliebsen contributed this month's picture. It shows two typical Danish fishing boats moored in one of the quiet side canals of Copenhagen. The modern cruiser stern to the left belongs to the 19-ton ' Rigni ' built at Aeroeskoebing and to the right—with elliptical stern—is the thirty-year-old ' Thorkild,' which displaces 18 tons.

THE SHIP'S LOG

THE QUESTION is often asked " What is a miniature ?" It was posed again at the Model Engineer Exhibition when a visitor remarked that the best of the miniatures was more of a piece of jewellery than a model. (It certainly had a jewel-like appearance with its daintiness and colouring and these features were emphasised by its small size.)

One conception of a ship model is something which records the details of construction of the ship and its rigging. Such a model is valuable as a factual record of the ship, but the beauty of a ship in its natural setting is also something well worth recording. The scenic model is a combination of the two, with the stress on the pictorial effect. It could thus be described as a picture in three dimensions.

As the scenic model must, of necessity, include the sea or some pictorial background the tendency is to make it small ; thus scenic models are often miniatures and a fully-detailed ship model invariably includes work of miniature standard. Marsh's clipper-ship models at $\frac{1}{8}$ in. scale, for example, include some incredibly minute works, but the model as a whole could not be classed as a miniature.

Some have advocated an overall hull length as the factor on which a miniature should be classified, but this does not allow for the enormous difference in the size of ships. A 12 in. long model of a skiff cannot be compared with a model of a big liner of the same overall length. Scale *must* be reckoned with, and the rule used for some years in classifying miniatures at the Model Engineer Exhibition takes this into account. It is said to be difficult to understand, but with a little study the rule can be applied to any particular case.

* * *

THE ATTENTION of builders of sailing models of prototypes is called to the article on lifeboats in this issue. Such lifeboats can be made true to scale and, with a detachable keel, make excellent sailing models. It would be pleasant to see examples in next year's Sailing Rally at the Round Pond —the drawings reproduced with the article ought to be of considerable assistance.

* * *

A POSTCARD (postage prepaid) will be found in this issue and *every* reader is asked to complete it and put it in the post. From time to time there are special items of interest to ship lovers and model makers, and we want to be in a position to inform them when such occasions arise. The postcards have not been included with subscribers' copies as obviously we have details of their names and addresses.

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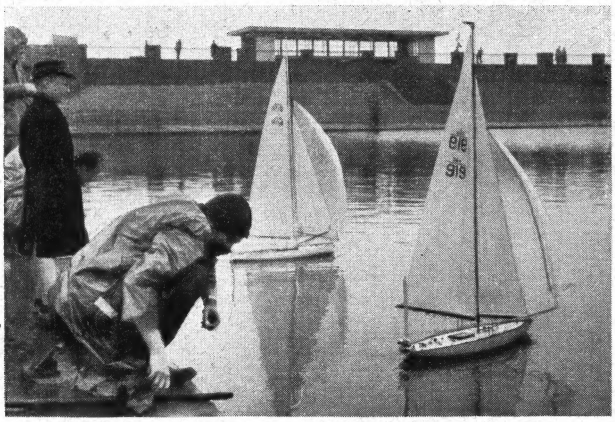
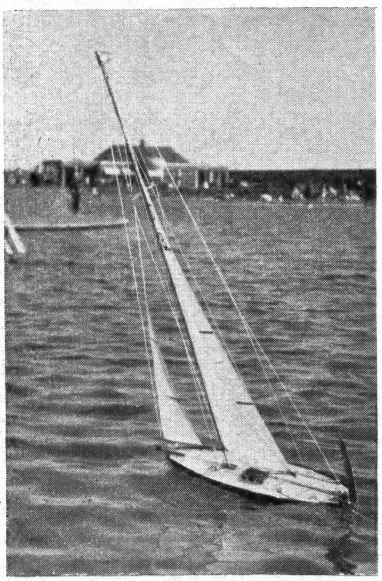
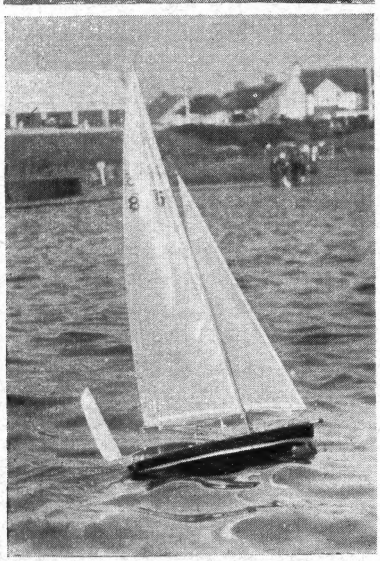


RESULTS

The final result was first : *Wolfcub* (865), D. Chadderton, Bolton, 48 ; second : *Rondo* (904), S. E. Marden, Y.M.6m.O.A., 42 ; third : *Hop-it* (949), D. Reed, Hove and Brighton, 41. Other scores :

791	*Dormie*	J. Elliot	Hove and Brighton	40
919	*Vivace*	D. G. Taylor	Danson	31
948	*Manor Miss*	G. H. Bain	Guildford	30
612	*Quackie*	E. Gorst	Clapham	30
405	*Thanet*	A. Trueman	Guildford	29
878	*Jakurma*	D. L. Hobden	Hove and Brighton	26
930	*Moonglow*	A. S. Wright	Danson	24
742	*Imshi*	A. N. Prior	Guildford	22
921	*Derek*	R. J. Fry	Hastings	21
797	*Pretty Puss*	J. Gorst	Clapham	6





36 inch Championship

Report of the British (M.Y.A.) 'open' at Hove

THE 36 inch restricted class championship was held at the Hove Lagoon with F. Jennings of Hove and Brighton as O.O.D. The entry was small with only one boat from a " non-local " club in the total fleet of thirteen. Other clubs represented included Clapham, Guildford, Danson, Hastings and Y.M.6m.O.A.

Nearly all boats carried spinnakers in many variations of material and colour ; polythene, cloth, red, white, blue and transparent and ranging in size from " flatties " tucked inside the jib to masthead ballooners. Only two of the fleet were using Braine steering and the vane gears of the others gave examples of many different mechanisms.

The first heat started promptly with the wind coming from the south-east to give a full-sail beat and run. Later the wind freshened a little and some boats had to change down from their light weather suits. Sailing continued to be very even with the fleet shaking down into some sort of order. Four heats were sailed before a halt was called for the day when the leading boats were *Hop-it* and *Rondo*, both having lost eight points with *Wolfcub* holding third place a point away.

The next morning started with heavy rain and a moderate wind from the north east. All boats were under top suits and after two heats the rain stopped while the wind remained steady. *Hop-it* was still doing well and *Dormie* and *Vivace* were both sailing much better than on the day before.

Three heats were completed before lunch with *Wolfcub* leading *Hop-it* by two points and *Dormie* lying third.

After lunch the wind veered to almost due east and freshened a little, giving a dead beat to windward. It was soon obvious that the three heats to be completed were to decide the eventual winner although only a complete change of form seemed likely to rob *Wolfcub* of the championship. *Hop-it* ruined her chances by losing two consecutive windward boards but *Rondo* shone again by not losing a point in the afternoon.

When the last heat started *Wolfcub* had only to win one board to clinch matters and for good measure she won both. The other three leading boats all won to windward, leaving the downwind board to decide the final placings. *Hop-it* gained 41 points, *Dormie* and *Rondo* 40 each. The latter won her board and *Dormie* lost hers. *Hop-it* had a re-sail with *Quackie* and with the wind suddenly falling light she lost—to be robbed of second place.

The 36 inch class is an ideal one for experiments, as modifications to sails and gear are likely to be less difficult and expensive than in the larger classes. It is to be hoped that the fears expressed in some quarters that the class is " finished " will be completely unfounded.

Top : 'Vivace' (919) and 'Rondo' (904) which worked up to second position

Centre : 'Wolfcub,' the winner, going well to windward

Left : 'Wolfcub' (865) heels over to the breeze

Launching the MAYFLOWER

described by EDWARD BOWNESS

THE ELEMENTS took an ample hand in the recent early-morning launching of the replica of *Mayflower* at Upham's Shipyard, Brixham. Rain poured steadily—though the gloom was relieved at intervals by lightning.

Spectators from all parts of the country made up the huge crowd, which assembled in the yard long before the start of the ceremony. A short service was held, conducted by the Vicar of Brixham, the hymns being accompanied by the band of the Somerset Light Infantry.

Hero toasts in sack

The ship was named by 25-year-old Reis Leming, the American ex-airman who was awarded the George Medal for his heroic life-saving efforts in the Norfolk floods of 1953.

In keeping with the ship herself the ceremony followed the lines of those used in the time of her sixteenth-century prototype. Mr. Leming toasted the new ship in old English sack, served in a golden goblet. The goblet was then passed along the shipwrights who were lined up on the deck, the last of whom tossed the goblet into the sea. It was recovered by one of the men who will sail in *Mayflower*.

Then the yard foreman, under the direction of Stuart Upham, builder of the ship, took command. As he sang out his shanty :

" *One blow, two blow, three blow,*
Strike her hard, strike her hard,
Inch a blow, up she rises
One blow . . ."

eight shipwrights on each side, with sledge hammers drove in the wedges which lifted the keel off the building blocks and transferred the weight to the launching cradles.

Then the shoring poles were removed and the steel hooks securing the cradle to the launching ways were pulled out. With a turn on the two screwjacks at the bows the ship began to move, with the crowd cheering and the band playing the Battle Hymn of the Republic. A few moments later she was in the water, sitting gracefully, as true and trim a ship as ever was launched—a great credit to her builders.

Breakfast—U.S. style

Later breakfast was served in the Town Hall. It comprised hot dogs, Boston baked beans and pork !

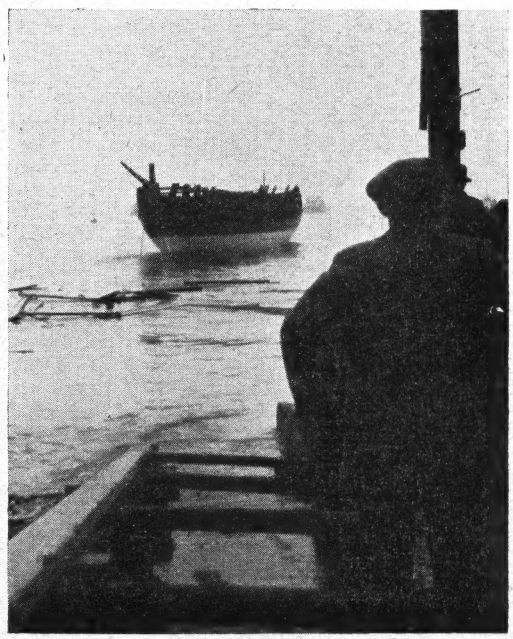
Owing to the difficulty of building such a high-sided vessel in the small shipyard—her taffrail is 40 ft above her heel—the planking has been carried up only as far as the main wale and only the lower deck is laid at present. The upper deck, quarter deck and poop deck will be laid and the remainder of the planking completed in the fitting-out dock.

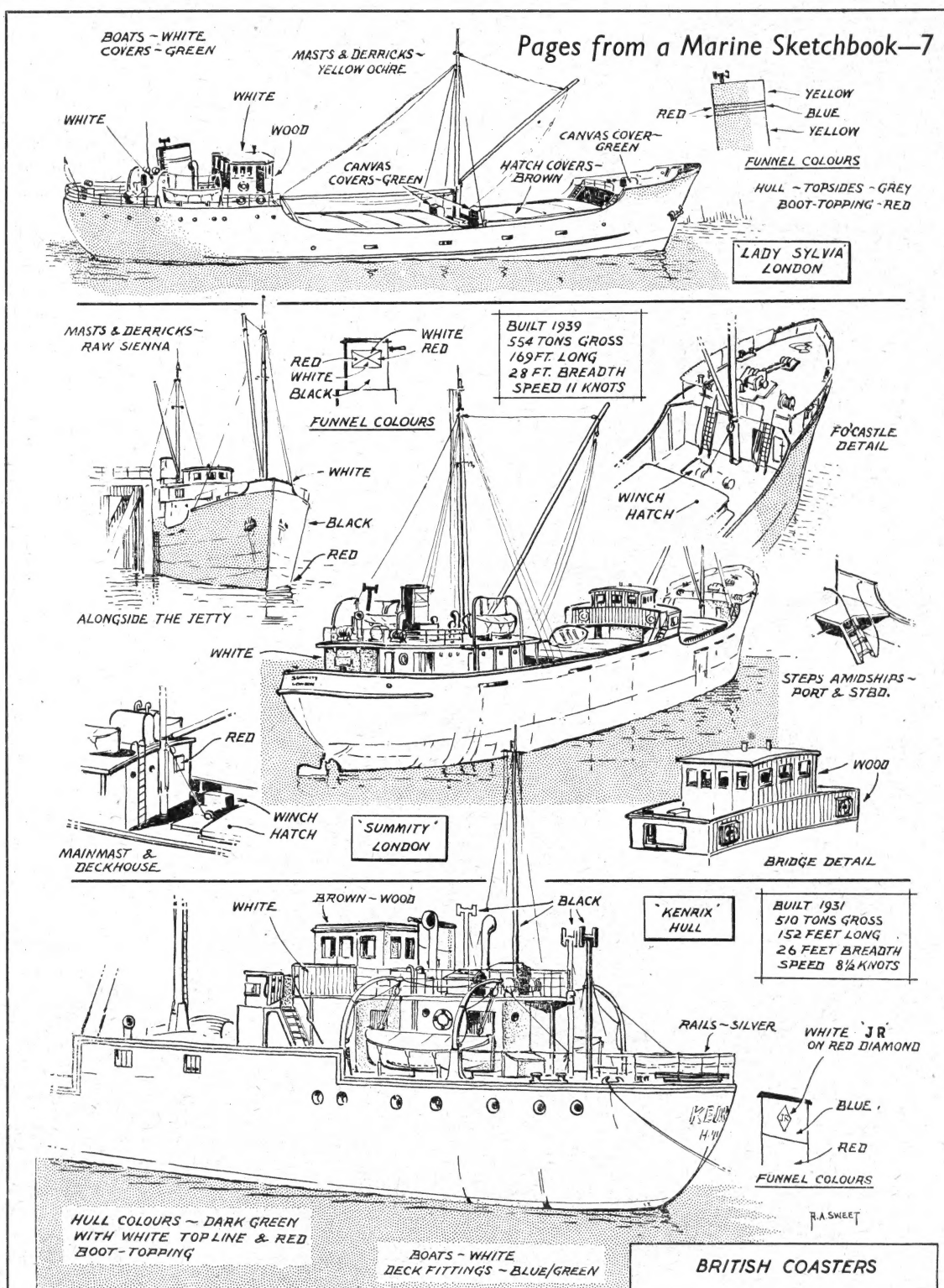
The masts and yards are under way and after the masts are stepped, rigging set up, running rigging rove off, yards sent up and the sails bent, the ship will be ready for her trials.

During this period she will be seen in several South-Country ports and it is expected she will visit the Thames, so that Londoners will have the opportunity of seeing her.

Left : 'Mayflower' meets the water for the first time

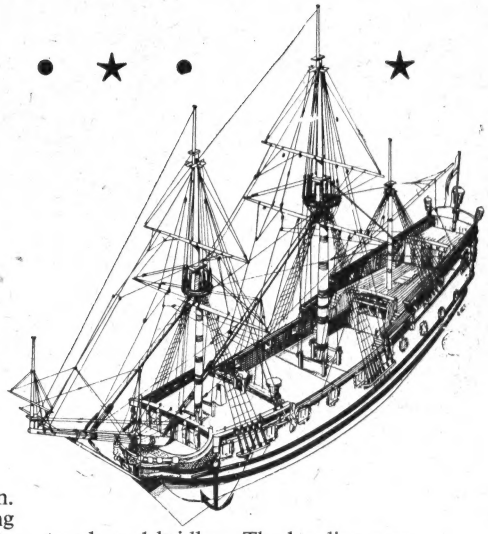
Below : Safely afloat : the shipwrights can feel pleased with their work




Pages from a Marine Sketchbook—7
BOATS ~ WHITE
COVERS ~ GREEN
MASTS & DERRICKS ~
YELLOW OCHRE
WHITE
WHITE
WOOD
CANVAS
COVERS ~ GREEN
CANVAS COVER ~
GREEN
HATCH COVERS ~
BROWN
RED
YELLOW
BLUE
YELLOW
FUNNEL COLOURS
HULL ~ TOPSIDES ~ GREY
BOOT-TOPPING ~ RED
'LADY SYLVIA'
LONDON
MASTS & DERRICKS ~
RAW SIENNA
WHITE
RED
RED
WHITE
BLACK
FUNNEL COLOURS
BUILT 1939
554 TONS GROSS
169 FT. LONG
28 FT. BREADTH
SPEED 11 KNOTS
FO'CASTLE
DETAIL
WINCH
HATCH
WHITE
BLACK
RED
ALONGSIDE THE JETTY
WHITE
STEPS AMIDSHIPS ~
PORT & STBD.
RED
WINCH
HATCH
'SUMMITY'
LONDON
WOOD
MAINMAST &
DECKHOUSE
BRIDGE DETAIL
WHITE
BROWN ~ WOOD
BLACK
'KENRIX'
HULL
BUILT 1931
510 TONS GROSS
152 FEET LONG
26 FEET BREADTH
SPEED 8½ KNOTS
RAILS ~ SILVER
WHITE 'JR'
ON RED DIAMOND
BLUE
RED
FUNNEL COLOURS
HULL COLOURS ~ DARK GREEN
WITH WHITE TOPLINE & RED
BOOT-TOPPING
BOATS ~ WHITE
DECK FITTINGS ~ BLUE/GREEN
R.A. SWEET
BRITISH COASTERS

BUILDING AN EARLY

SIXTH RATE



9—The concluding instalment

by R. J. COLLINS

IN this, the final, instalment we concentrate on the bowlines, leechlines and buntlines, ending with the cat tackle for the anchor and the ship's cable.

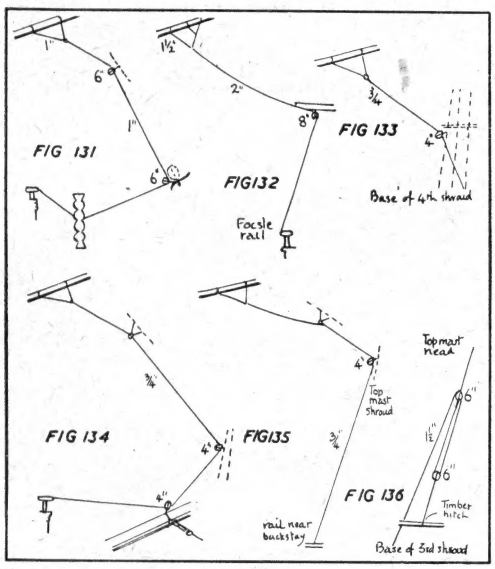
Fore top bowline (Fig. 131). Bridles and bowline of 1 in., the bridle 9 ft long with both ends to the yard. The bowline goes forward to the pair of 6 in. blocks on the fore stay about level with the fore yard and follows the stay down and through similar blocks stropped either side of the lower dead eye and from there to the beakhead rail via the second sheave of the rack block. Here again Battine only gives two blocks for ships of Third Rate and smaller. He may mean that there are no blocks on the stay—just a couple of thimbles as for the top gallant bowline. Personally I fit blocks.

The main top bowline (Fig. 132) has a three-legged bridle engaged as on the lower yard, 1½ in., each part being 13 ft 6 in. long. The bowline of 2 in. goes forward to 8 in. blocks slung under the after part of the fore trestle-trees, and from there down to the fo'c'sle rail. The mizzen top mast bowlines (Fig. 133) have ¾ in. bridles 12 ft long allowing two legs. The bowline, also of ¾ in., goes forward to a 4 in. block on the after main shroud just below the futtock stave and from there down to a pin.

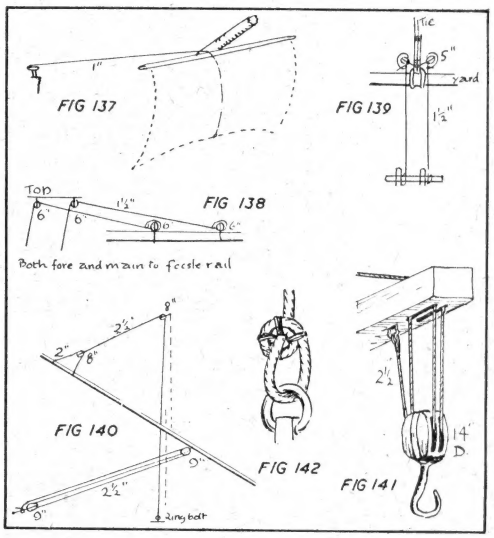
Fore top gallant bowline (Fig. 134) and bridle of ¾ in. Bridle 9 ft long with two legs. The bowline goes to a thimble on the fore top gallant stay. Battine only gives two blocks here, but there must have been more and again I follow Dr Anderson's lead. Through the thimble and follow down the stay to 4 in. blocks high up on the after sprit topmast shroud, then to blocks on the bowsprit about the position of the sprit yard standing lifts and so back to the beakhead rail. The main top gallant bowline (Fig. 135) was also ¾ in. with 12 ft for the two-legged bridles. The bowline goes through thimbles on the main top gallant stay to 4 in. blocks high up on the fore top mast shroud and then straight down to belay at the rail near backstay.

Leech lines (Fig. 136) were attached to the side or leech of the two lower courses and were used to draw in the sail when furling. A pendant from the topmast heads ends in a single block. From there a three-part tackle with a similar-sized block and from there again a single leech line passes down to make off between the outer buntline block and the yard arm. The running end of the tackle passes down to make off at the base of the third shroud for the main, to the rail at the fore. Lines 1½ in. and blocks 6 in. for both masts.

Buntlines were attached to the bottom or bunt of the sail and were used to draw up that part when the



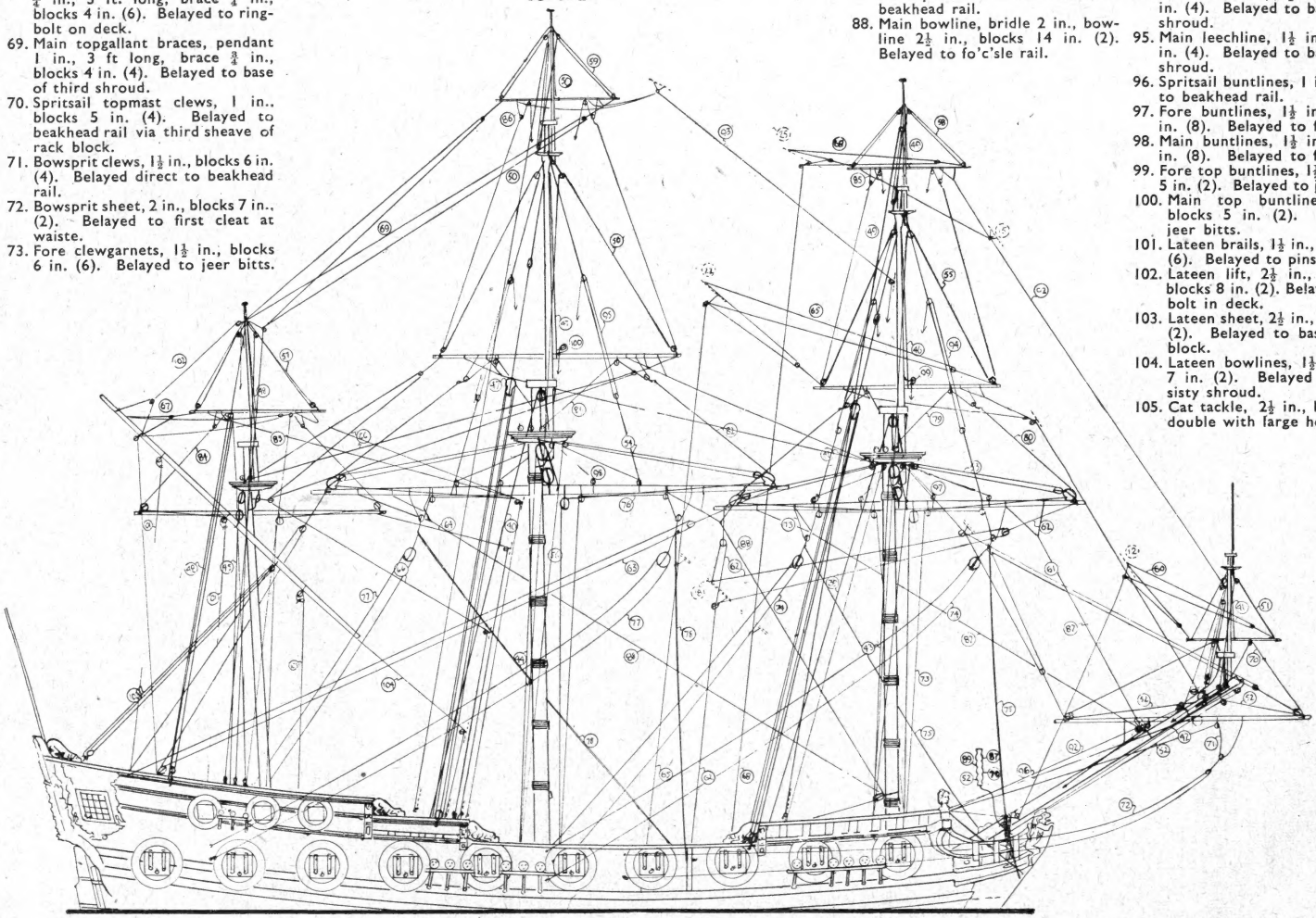
Details of the various components referred to in the text



39. Foretop ropes, 3½ in., falls 2½ in., blocks, 11 in. single with hook (2), 8 in. double (2). Belayed to ringbolt in deck.
40. Maintop ropes, 4 in., falls 3½ in., blocks 12 in. single with hook (2), 9 in. double (2). Belayed to ringbolt in deck.
41. Spritsail topmast halyard, tye 1½ in., halyard 1 in., blocks 4 in. (2). Belayed to hole in knee.
42. Spritsail halyard, 2 in., block 8 in. (1). Belayed to port side of gammoning.
43. Fore jeers, 3½ in., blocks 16 in. double (2), 16 in. treble (2). Belayed to jeer bitts.
44. Main jeers, 3½ in., blocks 18 in. double (2), 18 in. treble (2). Belayed to jeer bitts.
45. Mizzen lateen jeers, 2 in., blocks 12 in. single (1), 12 in. double (1). Belayed to port side knight head.
46. Fore topsail halyard, tye and falls 2 in., halyard 1½ in., blocks 9 in. (2), 18 in. long tackle (1). Belayed to ring below block.
47. Main topsail halyards, tye and falls 2½ in., halyard 2 in., blocks 10 in. (2), 20 in. long tackle (1). Belayed to ring below block.
48. Mizzen topsail halyard, tye 1½ in., halyard 1 in., blocks 6 in. (2). Belayed beneath lower block.
49. Fore topgallant halyard, tye 1½ in., halyard ¾ in., tye block 5 in. (1), 4 in. (2). Belayed to base of topmast backstay.
50. Main topgallant halyard, tye 1½ in., halyard ¾ in., blocks 5 in. (3). Belayed to base of backstay on opposite side.
51. Spritsail topmast lifts, 1 in., blocks 4 in., (2). Belayed to base of first dead eye.
52. Spritsail lifts, 2 in., blocks 6 in. (4). Belayed to beakhead rail via fourth sheave of rack block.
53. Fore lifts, 2 in., blocks 7 in. (4). Belayed to jeer bitts.
54. Main lifts, 2½ in., blocks 7 in. (4). Belayed to jeer bitts.
55. Foretop lifts, 1½ in., blocks 6 in. (4). Belayed to jeer bitts.
56. Main top lifts, 1½ in., blocks 7 in. (4). Belayed to jeer bitts.
57. Mizzen top lifts, 1 in., blocks 5 in. (4). Belayed to base of second shroud.
58. Fore topgallant lifts, 1 in., blocks 4 in. (4). Belayed to topmast trestle tree.
59. Main topgallant lifts, 1 in., blocks 4 in. (4). Belayed to topmast trestle tree.
60. Spritsail topmast braces, pendant 1 in., 3 ft long, brace ¾ in., blocks 4 in. Belayed to rail.
61. Spritsail braces, pendant 2 in., 3 ft long, brace 1½ in., blocks 6 in. Belayed to fo'c'sle rail.
62. Fore braces, pendant 2 in., 6 ft long, brace 1½ in., blocks 7 in. (4). Belayed to ringbolt on deck.
63. Main braces, pendant 2½ in., 6 ft long, brace 2 in., blocks 7 in. (4). Belayed to after kevel on quarter deck.
64. Mizzen crojack braces, 1 in., blocks 5 in. (2). Belayed to base of fifth shroud.
65. Fore top braces, pendant 1½ in., 3 ft long, brace 1 in., blocks 7 in. (6). Belayed to ringbolt on deck.
66. Main top braces, pendant 1½ in., 7 ft 6 in. long, brace 1 in., blocks 7 in. (6). Belayed between fifth and sixth shroud.
67. Mizzen top braces, pendant ¾ in., 3 ft. long, brace ¾ in., blocks 5 in. (4). Belayed to bolt of main brace block.
68. Fore topgallant braces, pendant ¾ in., 3 ft. long, brace ¾ in., blocks 4 in. (6). Belayed to ringbolt on deck.
69. Main topgallant braces, pendant 1 in., 3 ft long, brace ¾ in., blocks 4 in. (4). Belayed to base of third shroud.
70. Spritsail topmast clews, 1 in., blocks 5 in. (4). Belayed to beakhead rail via third sheave of rack block.
71. Bowsprit clews, 1½ in., blocks 6 in. (4). Belayed direct to beakhead rail.
72. Bowsprit sheet, 2 in., blocks 7 in., (2). Belayed to first cleat at waiste.
73. Fore clewgarnets, 1½ in., blocks 6 in. (6). Belayed to jeer bitts.
74. Fore sheet, 2½ in., blocks 14 in. (2). Belayed to second cleat in waiste.
75. Fore tack, 4 in. cable laid. Belayed to sheet bitts.
76. Main clewgarnets, 2 in., blocks 7 in. (6). Belayed to sheet bitts.
77. Main sheet, 3 in., blocks 16 in. (2). Belayed to inside of hull somewhere abaft of the mainmast.
78. Main tack, 5 in. cable laid. Belayed to first cleat.
79. Foretop clew, 1½ in., blocks 6 in. (6). Belayed to jeer bitts.
80. Fore top sheet, 3 in., blocks 14 in. shoulder (2), 14 in. single (2). Belayed to sheet bitts.
81. Main top clew, 2 in., blocks 7 in. (6). Belayed to jeer bitts.

RUNNING RIGGING

All the ropes are in natural colour unless otherwise stated.



82. Main top sheet, 3½ in., blocks 14 in. shoulder (2), 14 in. single (2). Belayed to sheet bitts.
83. Main top clew, 1 in., blocks 4 in. (4). Belayed by first shroud.
84. Main top sheet, 2 in., blocks 9 in. (4). Belayed to ringbolt at base of mast.
85. Fore topgallant clew, 1 in., blocks 4 in. (4). Belayed to jeer bitts.
86. Main topgallant clew, 1 in., blocks 4 in. (4). Belayed to jeer bitts.
87. Fore bowline, bridle and bowline 2 in., blocks 10 in. (2). Belayed via top sheave of rack block to beakhead rail.
88. Main bowline, bridle 2 in., bowline 2½ in., blocks 14 in. (2). Belayed to fo'c'sle rail.
89. Fore top bowline, bridle and bowline 1 in., blocks 6 in. (4). Belayed via second sheave of rack block to beakhead rail.
90. Main top bowline, bridle 1½ in., bowline 2 in., blocks 8 in. (2). Belayed to fo'c'sle rail.
91. Mizzen top bowline, bridle and bowline ¾ in., blocks 4 in. (2). Belayed to base of fourth shroud.
92. Fore topgallant bowline, bridle and bowline ¾ in., blocks 4 in. (4). Belayed to beakhead rail.
93. Main topgallant bowline, bridle and bowline ¾ in., blocks 4 in. (4). Belayed to rail near backstay.
94. Fore leechline, 1½ in., blocks 6 in. (4). Belayed to base of third shroud.
95. Main leechline, 1½ in., blocks 6 in. (4). Belayed to base of third shroud.
96. Spritsail buntlines, 1 in. Belayed to beakhead rail.
97. Fore buntlines, 1½ in., blocks 6 in. (8). Belayed to fo'c'sle rail.
98. Main buntlines, 1½ in., blocks 6 in. (8). Belayed to fo'c'sle rail.
99. Fore top buntlines, 1½ in., blocks 5 in. (2). Belayed to jeer bitts.
100. Main top buntlines, 1½ in., blocks 5 in. (2). Belayed to jeer bitts.
101. Lateen brails, 1½ in., blocks 8 in. (6). Belayed to pins.
102. Lateen lift, 2½ in., legs 2 in., blocks 8 in. (2). Belayed to ringbolt in deck.
103. Lateen sheet, 2½ in., blocks 9 in. (2). Belayed to base of lower block.
104. Lateen bowlines, 1½ in., blocks 7 in. (2). Belayed to base of sisty shroud.
105. Cat tackle, 2½ in., block 14 in. double with large hook.

sail was being furled. Sprit sail buntline (Fig. 137) was possibly just a 1 in. rope attached to the bunt about a third of the way in, passed over the yard to the beakhead rail. No blocks are given and it could be either left off or attached to the yard with a timber hitch. Fore buntlines (Fig. 138). These can either be rove through their blocks on the yard and made off to themselves or connected to the bridles of the bowlines. From the yard blocks the 1½ in. lines go to the blocks slung beneath the tops and down to the fo'c'sle rail. For the main mast, the line went forward from the blocks beneath the top to the fo'c'sle rail.

Fore and main topsail buntlines (Fig. 139). We are up against a problem once more. A pair of blocks are attached to the strop of the topsail tie block. As far as I can see the line would come from the bunt of the sail, through these blocks and then, as there are no more blocks, straight down. I belay them to the jeer bitts, but I don't know where the actual point is. Perhaps it would be in the top. For both masts the line is 1½ in. and the blocks 5 in.

We now come to the lateen yard. The bowlines, which are really braces, are already on and will hold the yard in place while the rest of the rigging is put in place. Some little way down from the parrel attach a 9 in. single block. This should be a "temporary" fastening as the block would be attached to the rail. Another 9 in. block is stropped to an eyebolt in the middle of the stern, close to the foot of the ensign staff. These are the sheet blocks and they are joined by a 2 in. rope worked as a three-part tackle and belayed to the strop of the stern block (Fig. 140).

The mizzen lift does not appear to be mentioned by Battine at all—certainly not in my copy—but I put one in anticipating that I might be wrong. Deane does not show one either, but he omits quite a lot from his rigging draught. A 2 in. rope about 14 ft long is rove through an 8 in. block and both ends are fastened to the yard, the upper one about 3 ft down and about 4 ft between them. The block is stropped or spliced to the end of the 2½ in. lift which goes to the mizzen masthead to another 8 in. block there and then down to belay to a ringbolt in the deck by the side of the mast.

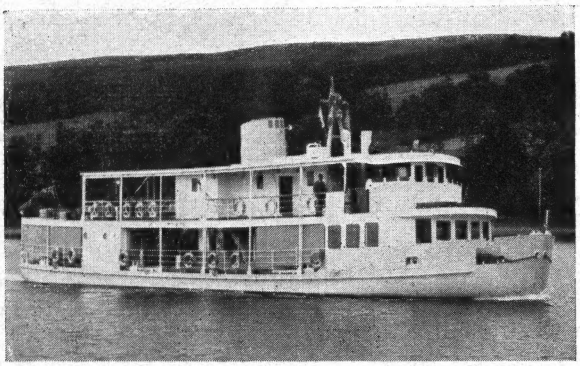
From each of the paired blocks already on the yards runs a 1½ in. rope. The standing end is rove through the block and made off to itself, the running end belayed to a pin in the capping rail more or less straight down.

This is the lot of the rigging but there is still the cat tackle for the anchor (Fig. 141). The rope is 2½ in. and the block, which is iron stropped and has a large hook, is a 14 in. double. A short 3 in. rope hangs down each side of the entry footholds. These are attached to eyebolts in the capping rail. I think I should make them white and they should be finished off with a large crown knot or at least a large knot.

The ship's cable, cable laid and wormed, was the heaviest rope in the ship. I don't know the size for this date and rate but for a later one it was 15 in. This sounds large but the *Victory's* cable was 27 in. so I imagine this was about right. Secure it to the ring of the anchor (which should be served) by the knot shown (Fig. 142). Pass it through the hawsehole, along the deck and down the hatch. If the model is solid all the hatches are covered, so remove a very small portion from the corner of one of the gratings. A few spots of glue, well hidden, should keep it in position.

And so my part of *your* model is finished. Or perhaps I should say that my part of *our* model is finished, for after all a modeller must depend upon the plans. Because of the lack of knowledge—both of myself and better men than I—a certain amount of what I have given is a matter of opinion. But I have done my best. I wish you good luck and plenty of joy.

It only remains for me to thank, even if I cannot name, all those who have helped me. But I must say a special "thank you" to Dr Anderson for his book "Seventeenth Century Rigging."

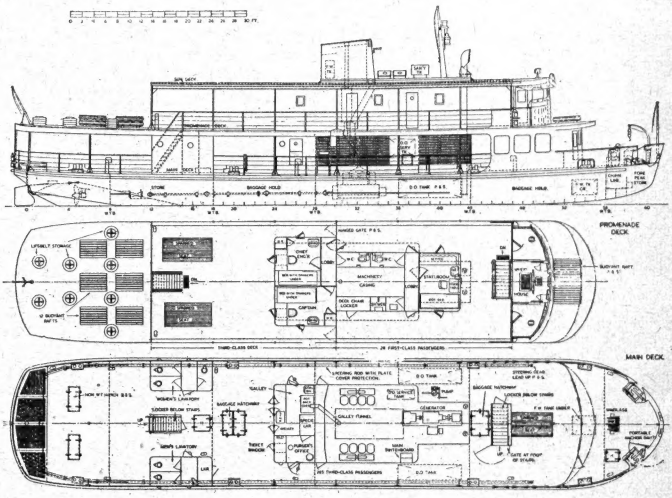


A PASSENGER FERRY FOR WEST AFRICA

ONE of the latest shallow-draught craft built by Yarrow and Co. Ltd for service in West Africa is the twin screw motor-driven passenger ferry *Itu*. This vessel, now operating between Calabar and Itu, Nigeria, is of the raised-propeller (tunnel screw) type.

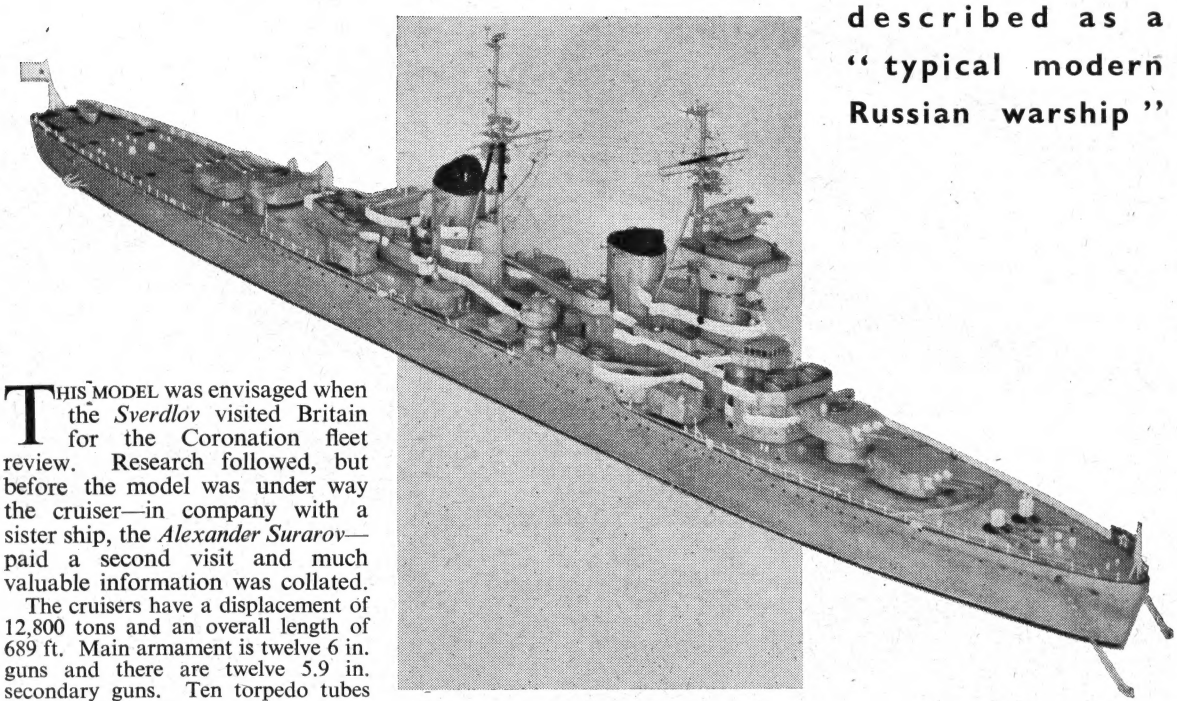
To ensure good manoeuvrability there are two large balanced rudders, which are actuated from the wheelhouse by means of hand-operated steering gear. The deck windlass is of the treble-purchase hand-powered type, with a drum on each side for warping purposes.

The main propelling machinery consists of two Widdop type-EMX4, two-stroke cycle, four-cylinder, cold-starting vertical diesel engines, which give the vessel a speed of ten knots. She carries twenty-eight first-class passengers and 285 third-class deck passengers.



A Soviet cruiser ★

Based on information gathered from two ships of the same class, this model by A. R. ADDEY is best described as a "typical modern Russian warship"



THIS MODEL was envisaged when the *Sverdlov* visited Britain for the Coronation fleet review. Research followed, but before the model was under way the cruiser—in company with a sister ship, the *Alexander Surarov*—paid a second visit and much valuable information was collated.

The cruisers have a displacement of 12,800 tons and an overall length of 689 ft. Main armament is twelve 6 in. guns and there are twelve 5.9 in. secondary guns. Ten torpedo tubes are also carried.

The scale is 1 in. = 32 ft and throughout the construction of this model the biggest problem has been the dimensions. These had to be worked out from photographs, taking the height of a man as 5½ ft and using this as a standard "measure." Results were compared with the dimensions of the one published "silhouette"—a compromise being taken and the final adjustment made by eye.

Forty photographs were used and these were studied before any part of the model was made to ensure that nothing had been overlooked.

The construction

Materials used were varied and conformed to no pattern. It was the practice to use anything that might have been available.

The hull was shaped from laminated balsa wood covered with paper for the decks. The latter was eventually painted with water colour and lined out with a sharp pencil, the cruisers having wooden decks.

At this stage the superstructure was built up with the two funnels. This is all balsa wood faced with thin paper card, giving a smooth surface. The steam pipes and other fittings on the funnels were made in fuse wire.

The masts were next constructed, being made from tubular brass and rod brass with balsa, fuse wire and thin alloy fittings. Soldering was used to adhere the principal parts of the masts, and this required considerable patience as there was always the danger of everything collapsing through overheating on such a small scale.

The main and secondary armaments were made in balsa wood, the barrels on the main turrets elevating, being pivoted on fuse wire. The tertiary armament comprised 32 37 mm. guns made from paper card and balsa wood, and the barrels from flower wire bound at one end with fine fuse wire to give the appearance of recoil springs.

All aerials and signal halyards are of hair while all whip aerials are glass fibre.

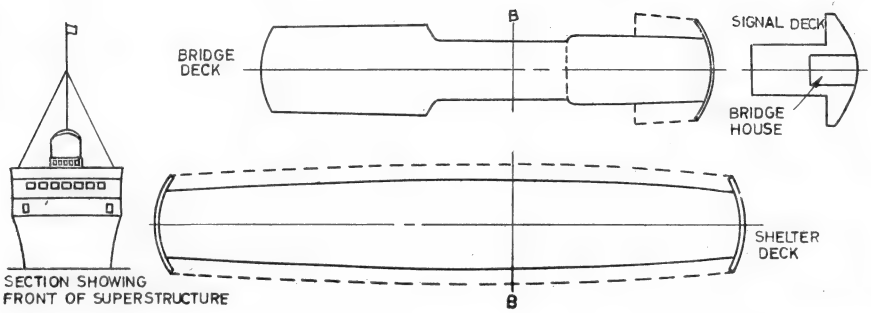
Carley floats were made from red covered wire—and only one half needed to be painted as their colouring is red and yellow.

Painting was carried on continuously during the construction of the model and any kind of paint was used to obtain the correct appearance. Throughout the time of construction the model was "lived with" whenever possible, as it is really intended to be an "artist's impression" in a solid medium conveying a life-like appearance of the real ship.

Finish still leaves much to be desired but it is hoped that experience and the utilisation of new materials will enable a higher standard to be achieved in future models. ⚓

Concluding the constructional details of Britannia

Beginners' PAGE



The letters BB refer to the line BB in the drawings on the September Beginners' Page

IN the September issue I described how to make the hull of the Royal Yacht *Britannia* in miniature form to the scale of 100 ft = 1 in.

The next operation deals with the shelter deck and the cabins underneath it. The cabins are made from a piece of wood, about 3/32 in. thick, 3 in. long and 15/32 in. wide, shaped as shown in the drawing, the full lines representing the cabins and the dotted lines the outline of the overhanging deck. The curved ends are covered with a piece of Bristol board which extends on each side to the full width of the ship.

Another method would be to use wood $\frac{1}{8}$ in. thick, shaping the underside to suit the sheer of the deck and then hollow the upper side until it is parallel to the lower one. This may be done with a scraper and care should be taken to obtain a good fit and a smooth finish.

Curving by steam

If 3/32 in. thick wood is used it will need steaming to the curve of the sheer and, under varying climatic conditions, it may come apart unless it has been well screwed down. The deck, which is cut out of Bristol board (3 sheet), is next glued down to the cabins, taking care to have the edges flush with and parallel to the upper edge of the hull.

The bridge deck, which has an overall length of $2\frac{3}{8}$ in. and a maximum width of 15/32 in., calls for similar treatment. Its thickness is a bare 3/32 in. and the curve of its upper and lower surfaces follows that of the sheer line of the ship. The deck itself, which is only 25/32 in. long, is of Bristol board and should be cut to the outline shown by dotted lines.

The signal deck is made from wood $\frac{1}{16}$ in. thick with the addition of a small rectangle, about $\frac{1}{16}$ in. thick glued flush with its forward edge as shown on the drawing. This represents the bridge house. The forward face of the bridge deck, chart house and bridge should be covered with Bristol board as with the shelter deck. The windows facing the bridge should be drawn before assembling, as should the windows on the side of the bridge deckhouse. The skylight on the bridge deck is made from card or wood of suitable thickness.

Wooden funnel

The funnel is made of wood, care being taken to get the correct rake and to see that the edge under the domed top is true all round. The capstans on the fore deck are short wooden pegs pointed and driven into place, with a length of thread to suggest the anchor cables. The recesses for the anchors should be cut with a fine chisel and the anchors merely painted in. The ship's boats are shaped as shown, being formed one by one on a strip of wood or plastic and cut off as they are finished. Davits are made from thin wire bent as shown in Section BB in the September issue. A touch of glue will hold them in position and the boats should also be glued where they rest in the sloping portion of the davits.

Masts are made from thin wire tapered from the shoulder to the masthead. See that they are parallel to each other and to the rake of the funnel, and, of course, vertical when viewed from ahead. The flagpoles are of still finer wire. Flags are of paper, but are so small that only the general colour can be suggested—gold or yellow for the Royal Standard at the main, and red for the admiral's flag at the fore. The Union Flag at the mizzen and the jackstaff might be suggested, and a little more can be done with the larger White Ensign at the stern.

The simplified rigging illustrated in September will be quite effective. Use the finest thread procurable, i.e. silk or nylon. Knots are unnecessary : it is quite sufficient to take a turn around the mast or flagpole using a tiny spot of glue, and holding it in position for a moment until the glue sets.

Colouring details

Painting should be done as the work proceeds and before assembly. The hull is royal blue with red boot-topping and a gold line at deck level. This line should be a piece of gold coloured embroidery silk glued on. The superstructure is white, and the funnel and masts buff. The boats are blue, with decks stained beige. The dome of the funnel is black. Reeves, the artists' colourmen, sell paints which are ideal for the purpose. Where glue is mentioned I refer to the modern quick-setting adhesives such as Croid or Durofix.

If the model is mounted in a wooden panel painted a mixture of blue and green to represent a realistic sea, the beginner will have a model which will be a pleasure to possess and which will inspire him to further efforts in this direction.

Drawings and pictures of *Britannia* were published in the May 1954 issue of this journal and pictures showing deck details in the July issue for that year.

E.B.

MODEL ENGINEER

The current issue of *Model Engineer*, price 1s., contains an article on the construction of a model of H.M.S. *Grey Goose*, details of building a precision microscope; the construction of a simple steam engine; a further instalment in the series on making a $3\frac{1}{2}$ in. gauge old-time American locomotive; a method of reclaiming worn-out files; a review of some excellent models built by the apprentices of an engine manufacturer, and many other features.

CONQUERING THE ICE

ALAN VILLIERS recalls some dramas of ships trapped in ice and tells how designers are overcoming the hazards of Arctic sailing with news of a

DANISH ICE BREAKER—CARGO SHIP

FOR A COUNTRY which owes its well-being so largely to ships and the sea, I must say there are times when I wonder why a little more intelligent presentation of sea stories and shipping news is not the rule in our national newspapers. Time and again I find an astonishing fact or an amazing fragment of a story buried in the pages of the Casualty reports at Lloyd's (Lloyd's List publishes columns of them daily) and yet I rarely see the items even referred to in any national newspaper. If they are, they're dismissed in two or three lines.

For instance, there was the astonishing case recently of the discovery of a little Norwegian sealing ship which had been abandoned a year before in the Arctic ice. Her name was the *Jopeter*. She was a steel sealer of modern type, sailing out of Aalesund in Norway. She got in the ice, had her propeller knocked off, could not get out nor be towed free because the ice was so bad and then the crew—having no alternative—left her. She was written off. Almost a year later she turned up in a fjord along the coast of East Greenland, none the worse for her long and uncontrolled sojourn in the ice. She was taken in tow by a salvage vessel from Aalesund, repaired, and is now fit for service again.

I saw no reference to this astonishing survival in any newspaper at all, apart from Lloyd's. I know sealers are not important ships. Few people ordinarily know of their existence, except when something like the *Theron* turns up to lift an Antarctic expedition from London River to the Great White South. There are many such sealers, the majority out of Norway, and they are fine, tough little vessels. Yet the survival of the *Jopeter* was truly an extraordinary incident.

It reminded me of a story I ran across in Canada once, of an Arctic ship which was similarly abandoned in the ice, and seen again not just one year later, but several times afterwards at further intervals of a year. She was not a sealer but an Arctic freighter, named the *Baychimo*, and she belonged, if I remember rightly, to the Hudson Bay Company. Her job was to carry stores and fuel to the company's stations and pick up furs, among other things, to take back to base.

Trapped in the ice

The *Baychimo* was a 1,300-ton vessel, built of steel, and she had been in the Polar trade for ten years when, on a voyage north into the Western Arctic in the early 1930s, she was badly caught in the ice and could not steam free again. A ship—even an icebreaker — may navigate through only certain conditions of ice and, when those conditions are exceeded, she has to stop. The *Baychimo* was used to bad ice conditions, for every voyage she made was in spite of them. But this time she was stuck, and it was no help that she had something like £200,000 worth of furs aboard. The crew had to get out of her and pitch camp on firm ice—as near to her as they could stay. Then a blizzard pinned them to camp for two days and, when the storm had blown over, there was no sign of their *Baychimo* anywhere.

The *Baychimo* was homeward bound towards Vancouver at the time—she'd made her last call at Herschel Island —with thirty-nine persons aboard. When the crew took to the ice their hope was that the ship would remain where she was until the following summer, and then they would steam her out again. But things were not as easy as that (which was a tough enough proposition in itself in all conscience). The ship disappeared—and they looked for her in vain. However, some Eskimos on a hunting trip came on the ship iced up again some fifty miles from where she was first imprisoned. Again the master and crew boarded the ship, this time to take off as much of her valuable fur cargo as they could, which they hauled away by Eskimo dog sled. After that, the *Baychimo* disappeared again.

New sea legend

Months later a lone Canadian on the way to Nome from Herschel came upon the *Baychimo* still apparently in good order despite all that the winter's ice could do to her. But she was still hopelessly caught in ice, much too heavy to allow her to get under way again.

All that spring, summer and autumn the *Baychimo* remained imprisoned. Again she had to be abandoned to her fate—this time for good—but there is authentic evidence that she was seen by traders and hunting parties annually for four further seasons ! Once she came drifting in her ice past

a place called Wainwright, in Alaska : but she could not be salved. So extraordinary was the *Baychimo's* long survival that there is a tradition around those parts of the Western Arctic to this day that she may still be encountered there.

I, personally, doubt that. There was a lot of luck in her long drift, just as there was in the *Jopeter's*. They must somehow have got themselves into patterns of ice which, withstanding the onslaught of all the surrounding ice, held their ships in an embrace which preserved instead of crushed them. They were very lucky ships indeed. One such brush with Arctic or Antarctic ice is fatal to most ships, even when they are specially strengthened.

Londoners are to have the chance of seeing the latest of a new type of Polar ship in the early days of November—a ship which ought to be able to survive by act of Man the hazards which both the *Jopeter* and the *Baychimo* somehow lived through by act of God. This new ship is a crimson-hulled Dane named the *Magga Dan*, and she is due in London to lift members of the British Antarctic expedition going south in connection with the great onslaught on the secrets of that frozen continent, so prominent a feature of the geophysical year.

Worthy background

The *Magga Dan* is the latest Polar vessel of the well-known Lauritzen fleet, of Copenhagen. This firm, noted for its enterprise in many directions (including the development of fast refrigerated ships and its school for pre-sea training near Svendborg) leads the world in the production of an entirely new type of ship—the icebreaker which is also a cargo and passenger carrier in her own right. Other icebreakers have always been content with that as a full-time job, and merely opened the ice for other ships to go through.

Lauritzen's, after considerable experience in Greenland waters as well as the semi-frozen Baltic outside their own front door, designed and built the first icebreaker-cargo-passenger ship, the 1,200-ton *Kista Dan*, at Aalborg, in 1952. In many ways the *Kista Dan* was unique. The J. Lauritzen Company had been engaged in the Finland and Greenland trade for many years. It built an icebreaking cargo steamer, the *Silja Dan*, in 1951, which further added to a long experience of ice navigation. Ice-strengthened ships were nothing new, but icebreaking cargo-carriers were. The *Silja Dan* did very well, and the *Kista Dan* and now the *Magga Dan* have followed.

The *Kista Dan* and *Magga Dan* have two steering positions from which not only can the ship be conned but actually steered and handled. They have the normal bridge with full range of instruments and a combined lookout-bridge built high on the foremast as well. Both stations contain steering control, pitch control (for the variable-pitch propeller), gyro repeater, telephone and the other essentials. The lookout-bridge has proved a most useful acquisition aboard the *Kista Dan*, and the ability to navigate directly from the crow's nest has been invaluable.

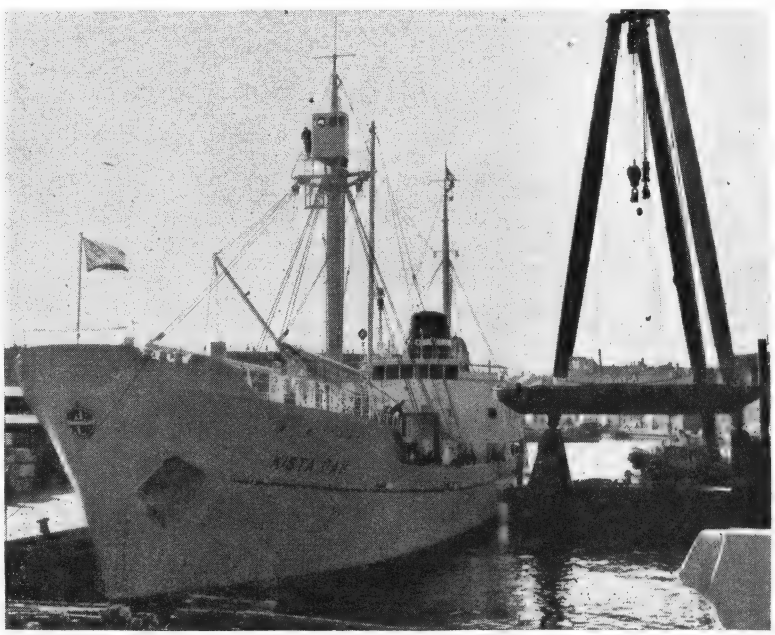
Other innovations include heavy fins which project horizontally from the hull below the water, forcing ice away from the propeller and so protecting it and the rudder from ice damage. These ships can actually go astern in ice-covered waters without grave risk of damaging themselves for, in addition to the fins, a strong ice knife is built in to protect both rudder and rudder-stock from damage.

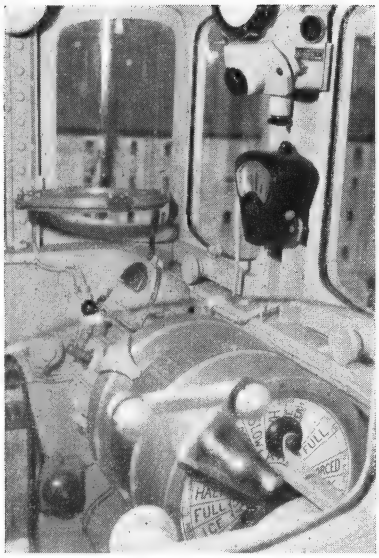
As a cargo carrier the *Kista Dan* was fitted with one 15-ton heavyweight derrick and four five-ton derricks, all with electric high-speed winches. She can handle a helicopter or a hydroplane. She has two big hatches with steel hatch covers. Her roomy main deck offers 2,600 square feet for deck cargo, even though the ship is comparatively small. For passengers she offers comfortable accommodation for twenty-four, in electrically-heated cabins. Her fuel-oil bunkers can carry sufficient for the ship to cruise non-stop 14,500 miles. As for her capacity to withstand the pressure of ice, her steel hull is sixteen times stronger in the fore part than that required by the classification societies. Radar, echo sounder, Decca navigator, complete radio, electric log, R.D.F.—all these she has, of course. Arctic and Antarctic special equipment includes a combined iceboat and sledge built of aluminium, which is equipped with everything necessary for long over-ice expeditions (such as rifles, sleeping bags and emergency provisions, etc.). This boat is designed to be hauled as a sledge across ice and to be a boat in open water.

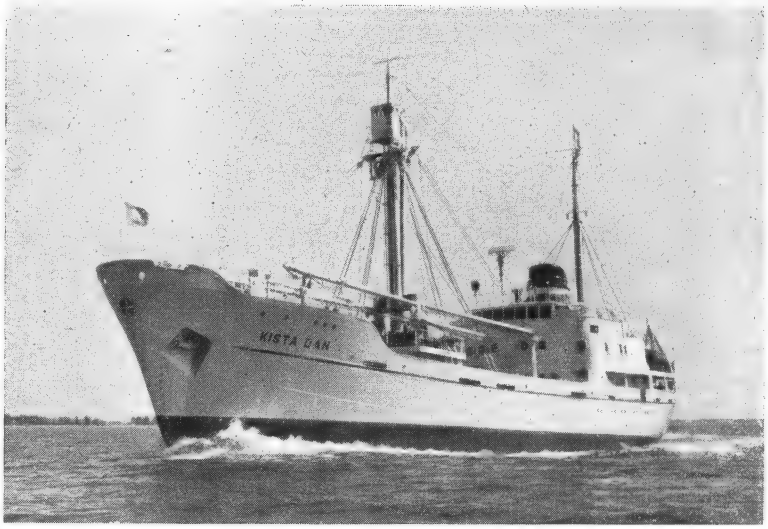
The *Kista Dan* has been a great success. Launched at Aalborg on the first of June this year, the *Magga Dan* ran trials at the end of September. She was launched by Mrs Vivian Fuchs, wife of the leader of the British Antarctic expedition, using a bottle of North Sea water instead of the traditional champagne. The North Sea water was to symbolise the ties between Denmark and Britain. Although she has a deadweight of less than 2,000 tons the *Magga Dan*—Magga means Margaret, in the Eskimo manner of speech, and all the Lauritzen ships are called Dans—cost half a million to build.

Her overall length is 245 ft and moulded breadth 45 ft ; her service speed is twelve knots and her range is 16,000 miles. She is a refrigerated cargo carrier, a passenger ship and an icebreaker all combined in the one hull. She is the finest Arctic or

A floating crane dwarfs the Lauritzen icebreaker 'Kista Dan'







Left : In the crow's nest of the 'Kista Dan'

Above : The shoreline fast disappears as the icebreaker gets under way

Antarctic expeditionary ship yet built anywhere and the members of the British Expedition will travel in her in a state of comfort and safety which earlier explorers never dreamt of. She can carry thirty-four passengers in roomy and comfortable cabins. She has 63,000 cubic feet in three insulated holds and deck space sufficient to stow crates and such almost *ad infinitum*.

Her Burmeister and Wain 7-cylinder turbo-charged diesel can be stepped up to give maximum ice-breaking power by means of the controllable-pitch propeller of special design. Her ice-strengthening includes underwater shell plating one inch thick up to load-line, and the frame distance throughout the length of the ship is twelve inches. There is one intermediate frame for each frame from fore to aft, extending from tanktop to the upper deck. Sternpost, rudder, steering engine, propeller and shaft have been correspondingly strengthened. All this is greatly in excess even of the demands for the Finnish ice class 1A, which, in turn, is much greater than Lloyd's requirements for vessels "strengthened for navigation in ice." The whole bow moreover is designed to ride up on the ice and fall down upon it again and smashing it ; this it can do with maximum power. Should it fail, the *Magga Dan*, can go astern without risk of damaging herself, which the usual ship cannot do in ice at all.

All these features—plus the crimson colour of her hull, designed to be conspicuous in ice and so the better mark for aerial navigation—make the *Magga Dan* truly a striking vessel. Lauritzen's have further plans for their special polar fleet and have, indeed, started a special Polar department—the only shipowners in the world to do so as far as I am aware. Their new polar fleet will include not only the *Kista* and the *Magga Dan*, but a 4,000-ton ice-strengthened motorship 320 ft long, 50 ft beam, with a service speed of 14½ knots. This motorship, like the smaller vessels, is designed especially for work in difficult ice conditions and she, too, will have the crow's nest steering and control position.

New fleet planned

As for cargoes, there are plenty of these in the Greenland trade nowadays, particularly since the discovery of metal concentrates near Mestersvig in East Greenland. It is a reasonable hope that the Antarctic will soon be providing cargoes, too, and Lauritzen's enterprise will have provided the pioneer ships to cope with it. After the *Magga Dan* comes the *Thala Dan*, which should be ready next summer. After the 4,000-tonner will come others. The *Silja Dan* is already in operation, and so are the *Rutha Dan* and *Jonna Dan*. A fleet now building —some of them are almost ready— includes five ice-strengthened motorships, two of 4,600 tons and three of 3,000 tons. This is without doubt the largest fleet of Polar merchantmen in the world.

Shipowner Knud Lauritzen sometimes makes voyages in his own ships and sees opportunities and works out requirements on the spot. Perhaps this is in part the secret of the company's success. Another secret, I am sure, is the thoroughness with which it prepares not only its ships but its people. First master of the *Kista Dan* was Captain Hans Christian Petersen, who began his career as a boy cadet in the little full-rigged ship *Georg Stage*—the one which I bought and renamed *Joseph Conrad*. Captain Petersen became an instructor in the old *Georg Stage* and then was second mate with me on our circumnavigation. After years in the Greenland trade, he was sent to learn even more about ice navigation with the sealers out of Aalesund. Among other ships he was in the *Jopeter*.

Captain Petersen, who now commands the *Magga Dan*, knows the risks of the trade. So do his officers and crew. The Lauritzen company does not only maintain its own pre-sea training school. It helps its boys throughout their careers and likely lads marked for the polar ships are given polar experience—both deck and engine room officers and men. In polar work, as in all other seafaring, thoroughness pays. ⚓

NAVY MODELS WANTED

The King George's Fund for Sailors wants to buy some models of modern Royal Navy and Merchant Navy ships for use in their headquarters and exhibitions. The models must be about 1-2 ft. long and the price should be reasonable.

Readers who may be able to help should write to Lt. Commander G. Webb, King George's Fund for Sailors, 1 Chesham Street, London, S.W.1. ⚓

Naval Photograph Club

by P. A. VICARY

FOUR fast patrol boats attached to coastal forces have been commissioned at H.M.S. *Hornet*. They are *Dark Antagonist*, *Dark Hunter*, *Gay Cavalier* and *Gay Bowman*. There are now four Gay class boats with eight more in reserve. The first squadron is now composed entirely of Dark class boats, which are the latest to be introduced into the Navy. They are the first warships for some considerable time to have black hulls. They are painted this colour as fumes from Deltic engines on paint of any other colour have a deleterious effect.

H.M.S. *Albion*, following refit, has sailed to the Mediterranean to join *Bulwark*. Both ships are fully operational carriers and have their full complement of aircraft aboard. A large force of coastal and inshore minesweepers are at Malta with their depot ship *Mull o Galloway*. The cruiser *Ceylon* has been recommissioned after a long refit and modernisation. After working-up she will proceed to South Africa to be flagship of the C-in-C South Atlantic Squadron and, in April, will become flagship of the C-in-C East Indies Squadron.

* * *

The United States destroyer *John Paul Jones* has visited Britain recently on her first shakedown cruise following her commissioning. She is one of the most modern creations from American naval shipyards, incorporating all the latest devices in warship construction and equipment. Her firepower is greatly superior to that of other previous destroyer types and is fitted with the latest anti-submarine devices.

John Paul Jones is named after America's greatest naval hero, Commodore Paul Jones, who was the "father" of the American Navy. The vessel visited Leith and while there a party of officers and seamen from the ship visited Kirkbean, in the county of Kirkcudbrightshire, to make a presentation to the townspeople. For it was at Kirkbean that John Paul—later adopting the name Jones in America—was born on 6 July 1747.

John Paul, who had a violent temper, went to sea at the age of twelve. He became skipper of a Whitehaven slaver, killed two of his crew and fled to Virginia. He became a planter there and called himself Jones. He obtained a command in the American Navy in 1775 and, at the request of George Washington, purchased ships to wage war against the British. In 1777 he crossed the Atlantic in the frigate *Ranger* and, landing at Whitehaven, dismantled the already-ruined fort. After a similar exploit in Kirkcudbright Bay Jones captured the British frigate *Drake*.

Two years later, while commanding the *Bonhomme Richard*—he was then employed by the French—he captured the British ship *Serapis* off Scarborough.

Jones was appointed an admiral in the Russian Navy in 1788 and commanded a fleet in the Black Sea and there won a great victory over the Turkish fleet. But he quarrelled with Prince Potemkin, the senior Russian Admiral, and returned to Paris in 1790 where he died.

* * *

The Egyptian destroyers *Al Quaher* (ex H.M.S. *Myngs* and the *Al Fateh* ex H.M.S. *Zenith*) have arrived in Egypt without any ammunition for their 4.5 in. guns or torpedoes. It is rumoured that the Russians may rearm these two ships.

* * *

My picture this month shows H.M.S. *Cadiz* which is being modernised. On completion of the refit she will be handed over to the Pakistan Government.

Jason's notes

LAST MONTH I touched on the subject of "lone wolves" and I mentioned a quartette I had met who were not interested in ship model societies because "they would not benefit us personally." On the other hand I have known hundreds of modellers, literally hundreds, who are eager and anxious to join a society. Let me carry this a step further.

Years ago the Birmingham society got off to a fine start and, faithful to my advice, subsequently held an exhibition supported by a big city store. It ran for ten days. There was Press and radio publicity. *And the biggest society in the British Isles doubled its membership.* Some of the members were found to be equal in their craftsmanship to the older members, but until the time of the exhibition most of them were unaware of the existence of the established society. They—at least most of them—were lone wolves in every sense of the word.

Lonely in York

I REFER to the Cathedral city of York—and September's Mailboat. W. R. Cowl is evidently a lone worker and he hungers for someone to confide in about his hobby. His letter to the Editor says that for some time and in various ways he has tried to contact other ship modellers in York.

Well, is it worth surmounting such an obstacle? Of course it is! Really it is the beginners who matter. Even lone wolves have been beginners, but only by sheer guts have they been able to stick it out until by some chance they've found themselves in the limelight of some exhibition.

Then there is a heart searching. Some erring husbands who imagine that they are "misunderstood" should stand beside a modeller at his first or second modelling attempt. C. Chapman and Donald McNarry (the miniaturist) who both won championship cups were lone wolves. They both admit their help from the pre-war SHIPS AND SHIP MODELS in conjunction with a study of other models at various exhibitions up and down the country. But there are not many Chapmans and McNarrys about.

Flourish and die

MOSTLY lone wolves flourish and die with their first or second model. A girl friend comes along. A change of "digs" with the dictum "No mess 'ere!" may not, perhaps, kill the modelling spirit, but it's awfully discouraging. Evening classes have their time—another curtailing effect.

But in spite of these things many lone wolves still pursue their hobby with varying fortunes, though it is often followed the hard way, the way that leads to indifferent work in a model that suffers until, finally, the despondent modeller concludes that he "is not cut out for such work."

A lone wolf's prowess. Some of the awards secured by C. Chapman, of Peacehaven, a modeller for over twenty-five years

Beginners neglected

THAT is why, when looking over the work entries in a national ship model-making competition in 1931, I decided that societies were desirable—indeed essential. The first was Liverpool, the second Manchester. Yet both faded and were not revived. The cause of Liverpool's decline was certainly its neglect of beginners. That is why *Jason's Book* was started. The idea was that visitors to exhibitions organised by *Model Engineer* should record their names and addresses in order to provide a nucleus of members for potential leaders in new areas. I, personally, was responsible for something like forty societies being started.

Now if only two lone wolves can get together their troubles will be halved. Each divulges tips on craftsmanship and supply. This doubles the speed. Each is a constructive critic and a good listener and each is happier thereby. Simple, isn't it?

Here's how

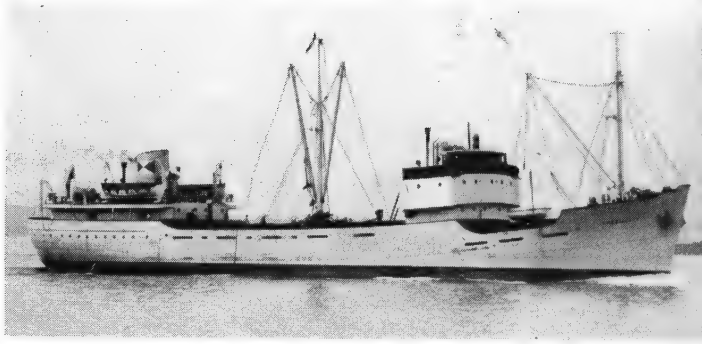
A POST CARD with your name, address and type of model you are working on, or propose to work on, will be sufficient. Send it to me care of the journal, 19-20 Noel Street, London, W.1. All cards I receive will be forwarded to the nearest modeller in your vicinity. Don't forget to mention if you are a power-boat man interested in radio control.

It may easily be that your nearest modeller is sixty miles away. Well a letter won't hurt either of you and you might arrange to visit him occasionally. You may be the founder member of a Leicester, Leeds or Blackpool society. All three of these places are long overdue for organisation.

A pertinent query

WHAT is the attitude of the judges and the organisers to the modeller who has a well-equipped workshop in contrast to his less-fortunate brother—physically handicapped, perhaps—who has to be content with the corner of the kitchen table? This question was fired at me the other night. I couldn't dodge it. Well, what do you think? My thoughts on this next month.

A London firm takes over its 100th ship and to mark the achievement LAURENCE DUNN contributes a sectional drawing of one of the company's larger vessels



SINGULARITY

WITH THE RECENT LAUNCH of the motor vessel *Centurity* the Thameside firm of F. T. Everard and Sons Ltd achieved the unique distinction of possessing a fleet of one hundred ships.

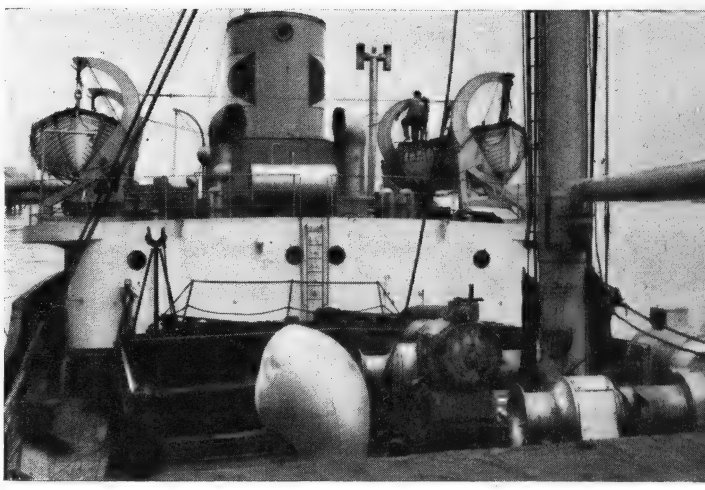
These cover a wide range of types—from sailing barges and local service craft to the more numerous and larger ships used on the coastal and short sea trades. These include both tankers and dry-cargo carriers, the largest being the m.t. *Astrality*, 3,744 tons gross.

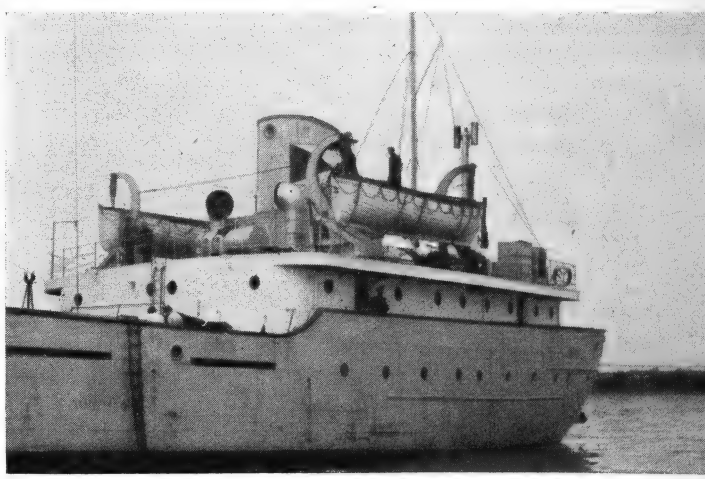
The m.s. *Singularity* is one of their larger units and belongs to what is probably the most important group in the fleet, a series of six yellow-hulled vessels which were completed in 1951-52. Of these *Singularity* and her sister *Seniority* were built by the Goole Shipbuilding and Repairing Co. Ltd, and the other four, named *Selectivity*, *Seriality*, *Similarity* and *Speciality*, by the Grangemouth Dockyard Co. Ltd. Besides these there are two very slightly smaller ships, the rather older Goole-built *Security* and *Stability*. Although their external shape is similar, these two differ in having the more usual black-painted hulls.

Comprehensive specification

Externally *Singularity* differs from her sisters in carrying a mizzen. She represents the modern coastal-short seas trader at its best, a ship with exceptionally good accommodation and able to carry a wide variety of cargoes, ranging from coal and raw sugar beet coastwise, to timber and wood pulp in the near-Continental trades.

When visited recently in the Thames she had just finished discharging coal and was loading cement for Plymouth. She has a gross displacement of 1,566 tons

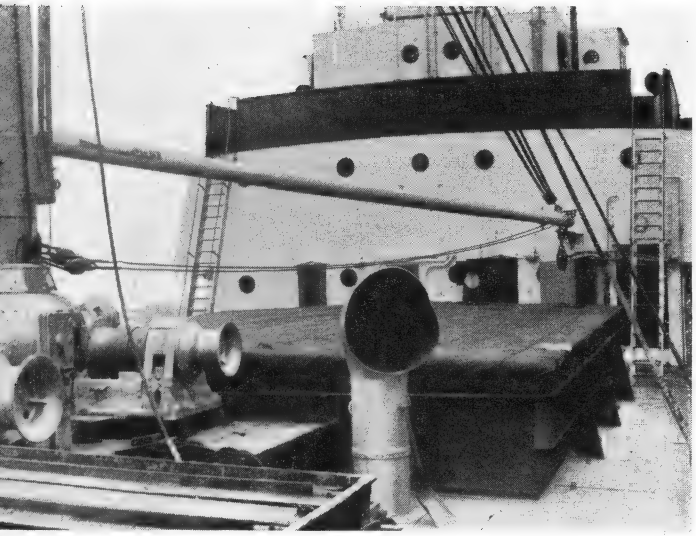




Top : 'Speciality' the Grangemouth-built sister ship of 'Singularity'; note the fuller stern and minor differences in the shape of deck fittings

Centre: 'Singularity' looking aft from the mainmast

Right: After half of 'Singularity,' showing port lifeboat and davits

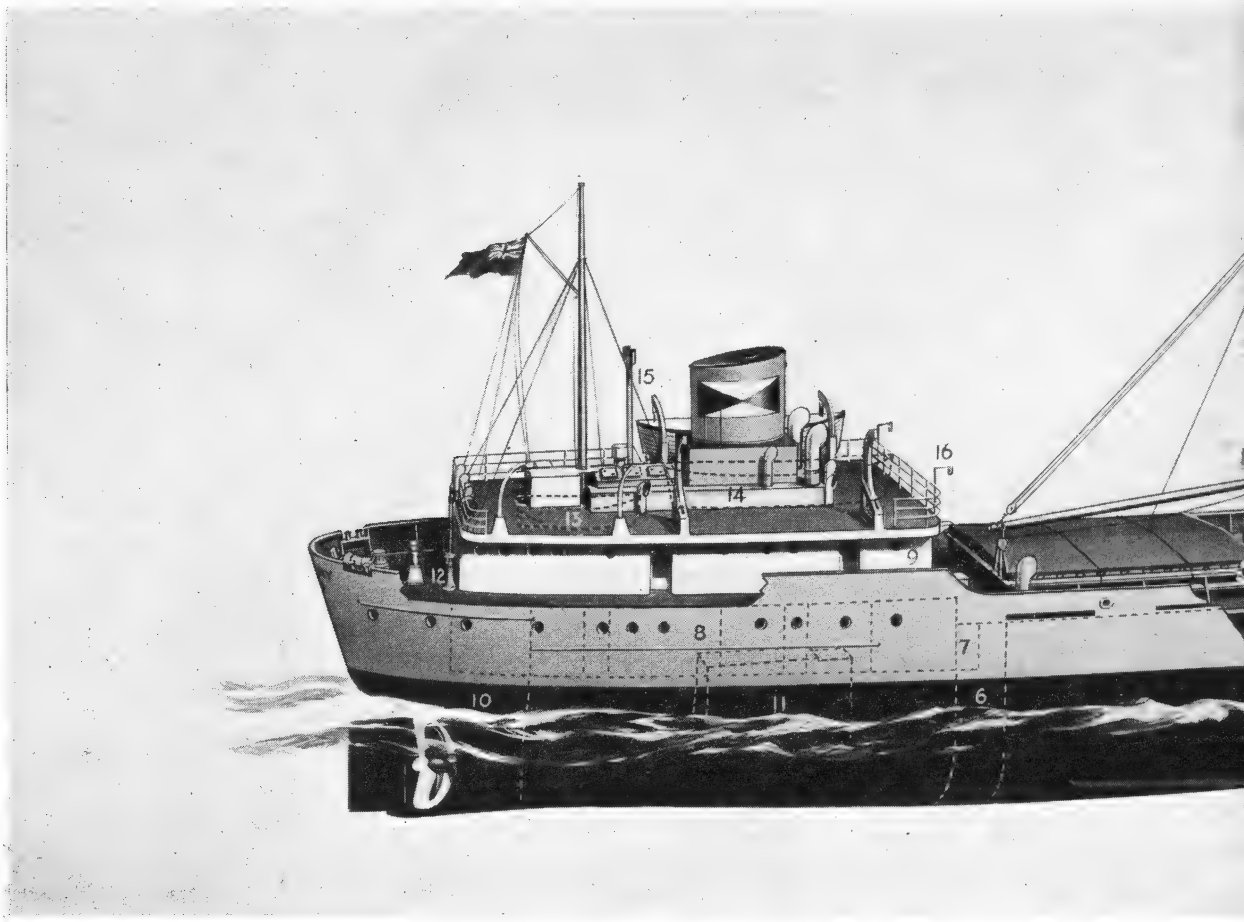


'Singularity' looking forward from the mainmast

and a deadweight capacity of 1,850 tons. Her overall length is 242 ft 5 in., breadth extreme 38 ft 2 in. and load draught (summer) 15 ft 7¾ in. Like the majority of the fleet she is powered by a Sirron diesel engine. This is of 4-cylinder single-acting 2-stroke design, and develops 800 b.h.p. at 250 r.p.m., giving a loaded speed of 10½ knots.

As on other new Everard ships the accommodation is remarkably spacious and well laid out. On the port side of the bridge deck are the captain's bedroom and dayroom. Next to these are cabins for the steward and two officers. Below, on the centreline, are the dining saloon and pantry, while flanking these are the lounge and hospital. The three engineer officers have their cabins at the forward end of the poop deck. Crew's cabins—all single berth—together with their mess and recreation rooms, engineers' mess, etc., occupy the rest of the poop and deck below.

There are three holds, the two after ones being divided by a wooden bulkhead. Further forward, under the bridge, is a large deep tank. This has a capacity of 250 tons, while a further 364 tons may be carried in the fore and after peaks and double bottom. The oil bunker space is just forward of the engine



room. The fo'c'sle is an open one, containing only the paint store and lamp room.

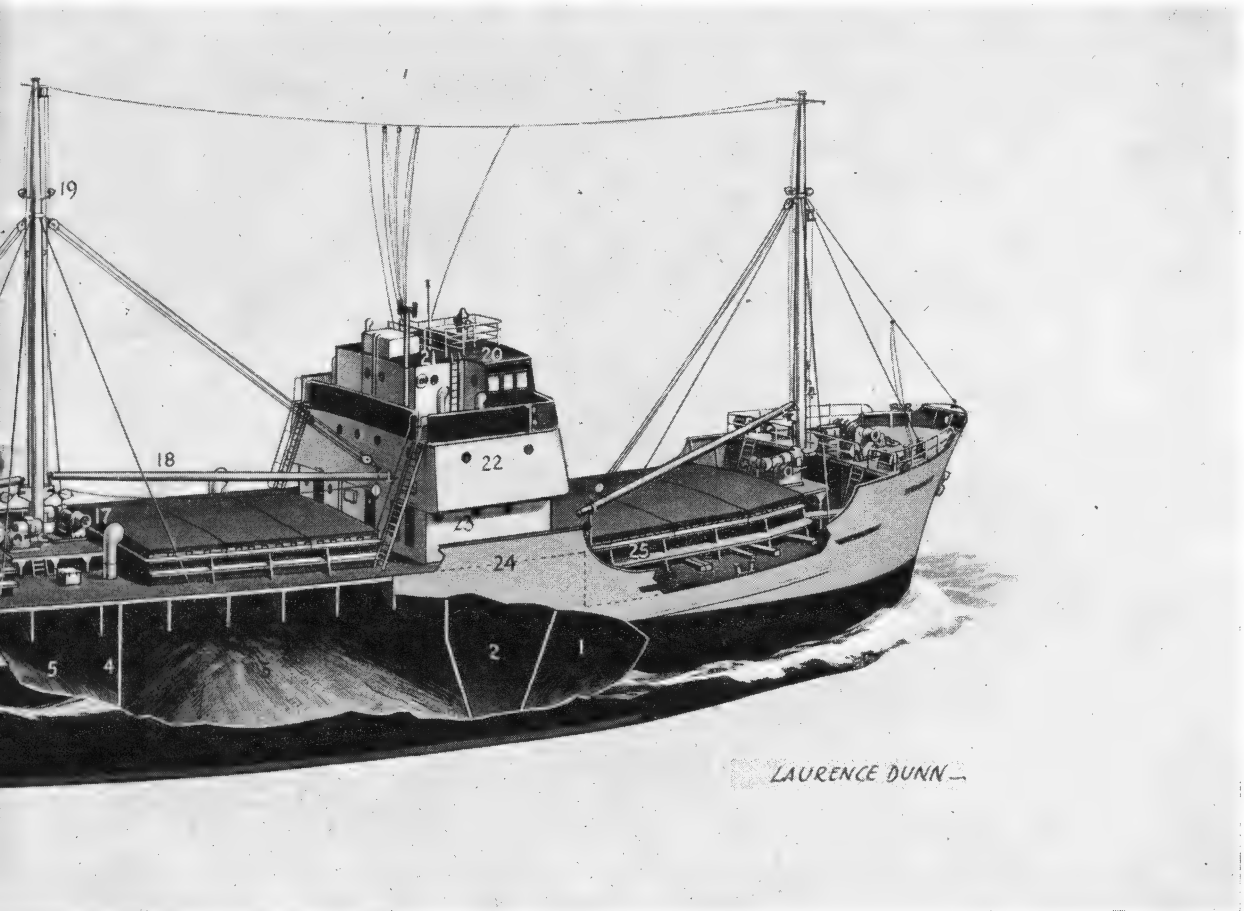
Interesting external features are the very pronounced tumble-home to the bridge, which also has a sloping front, and the arrangements in the fore well. Here the hatch coamings are of considerable height and to ease the stowage of the many hatch covers when in port, wooden beams are fitted thwartwise between the coaming and bulwarks. The covers are stacked on these—several feet higher and nearer than would otherwise be possible. A narrow walkway is also fitted either side of the hatch coaming, about two feet above the deck, with an extension to the fo'c'sle ladders.

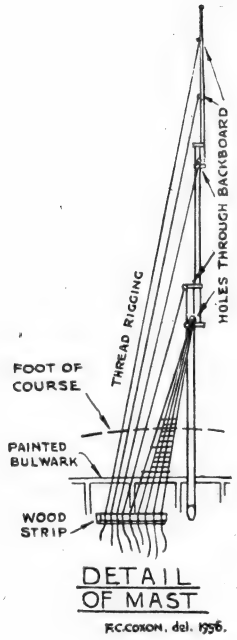
For modellers some notes as to colour may be of use. The ship is attractively painted with black boot-topping and yellow topsides. Contrast is provided by a white spirket plate and a narrow line of reddish brown. This brown is also used for the name, hatch coamings and the inboard side of the bulwarks. Deck machinery and adjacent cowls, etc., are white or aluminium, as are the water tanks aft and on the top of the bridge. The upperworks, boats and davits are white ; the masts, derricks, funnel (bearing red and white flag), funnel base, engine room skylight and adjacent ventilators are all yellow. The poop, boat deck, navigating bridge deck and wheelhouse roof have plank sheathing, that on the last named being painted black. The steel decking amidships and in the well is a neutral colour, but that on the fo'c'sle is painted apple green.

As is usual there are slight variations between the ships from the two yards—the Grangemouth built ones, for example, having a slightly fuller and more rounded cruiser stern.

KEY

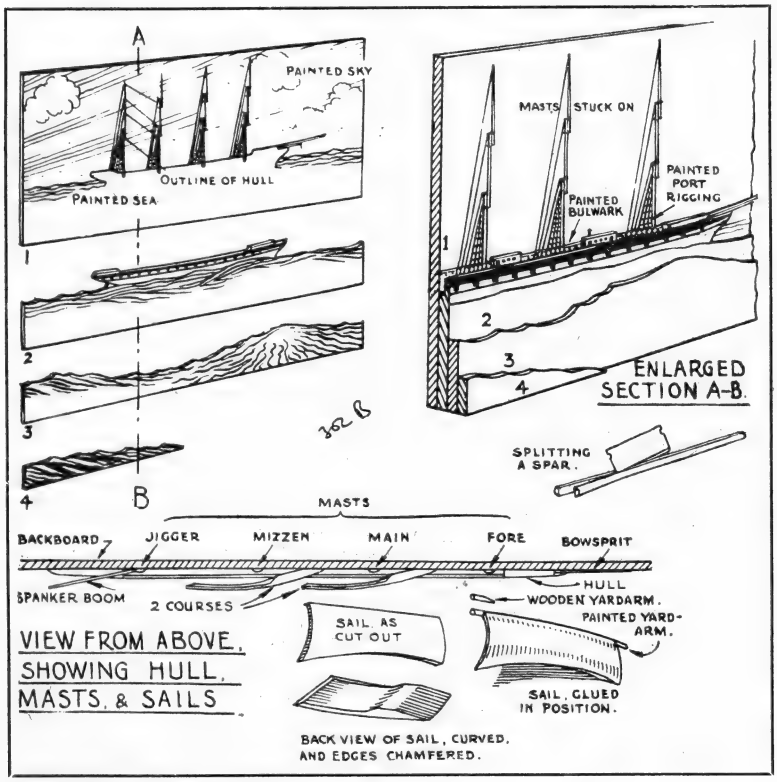
1. No 1 hold (hatch 34 ft 10 in. x 22 ft 10 in.)
2. Deep tank
3. No 2 hold (hatch 30 ft x 23 ft 10 in.)
4. Wooden bulkhead
5. No 3 hold (hatch 30 ft x 23 ft 10 in.)
6. Oil bunkers
7. Cofferdam
8. Dotted lines show extent of crew's accommodation
9. Engineers' cabins
10. After peak
11. Position of main engine
12. Capstan control (electric)
13. Position of 14 ft dinghy
14. Position of 24 ft wooden lifeboat (boat on port side motor driven)
15. Galley chimney
16. Swivel lamp
17. Electric winches
18. Steel 40 ft derricks (three)
19. Cargo lights
20. Wheelhouse
21. Chartroom
22. Captain's quarters
23. Hospital
24. 5 ft high quarter deck
25. Walkway





A technique for picture models

F. C. COXON discusses his experiments which, he says, aim at infusing more life and colour into miniature sailing ships



WHY has the modelling of sailing ships such a fascination still, notwithstanding the disappearance from the seas of these white-winged beauties? Even the author, who has modelled everything under the sun, never sailed in them professionally although he knew them well and was brought up among people who talked of little else.

Finding himself—after peace broke out—once more afloat and discussing model ships, it was natural that these complicated objects soon came into their own again; though of late years the old-type models, perched high and dry in a decorous glass case next to the aspidistra, no longer satisfy. Now new approaches are being tried out.

As seen in action

Briefly, these experiments are attempts to infuse more life and colour into miniature sailing ships by modelling them in action, i.e. as they appeared during some exciting incident in their lives—which generally means in trouble! A somewhat sketchy little model displaying an ingenious jury rig after the dismasting of a one-time famous ship is featured continuing her passage through a lifelike and liquid-looking sea, and has received favourable comment.

Now, another idea has been hammered out—also with a pleasing result. This has materialised in a polished-up version of the old-time "relief" model and some constructional details are shown in the accompanying sketches.

The model gives a very satisfying three-dimensional effect, also taking up very little space as an article of furniture compared with the cumbrous and oftentimes vulnerable glass-cased job; a distinct advantage in the small rooms of the modern house. Also—let's whisper it—there's not quite so much rigging to do and the minimum of "carpentry."

Perspective effect

This piece of work, half model, half oil-painting, achieves its perspective effect by the use of built-up layers of Essex board. The sketches should be sufficient to explain how it is done. Though unorthodox these "3-D" picture models need not be inaccurate, and they can either portray the simple sailing ship types similar to the picture, or employ the technique touched on. The method, of course, poses some absorbing problems in the fitting of rigging, etc., but surely the overcoming of difficulties such as these contributes greatly to the fascination of modelling in general?

The picture shows that much of the

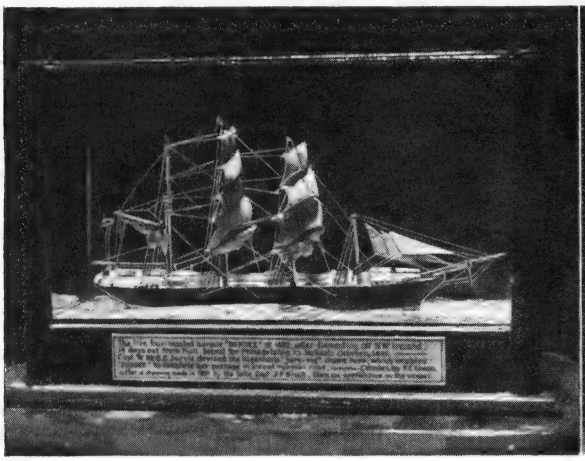
realism is imparted through skilful carving and painting of the seascape, particular attention being given to those waves of the sea uprearing themselves in the foreground, these being given an extra bold treatment so as to lend perspective to the delicate work behind them. Although the "layer" method might suggest a certain cumbrousness in the finished picture model, in practice this has not been found at all evident. The specimen just completed and framed projects from the wall exactly one and a half inches and the boldly-coloured detail produces an immeasurably richer effect than an ordinary oil painting could.

I believe that too meticulous a description of any modelmaking idea is a waste of time, since modellers appear to be the most pigheaded specimens of humanity, and will always go their own ways whatever they are told ! So, the very briefest description of my method is now given.

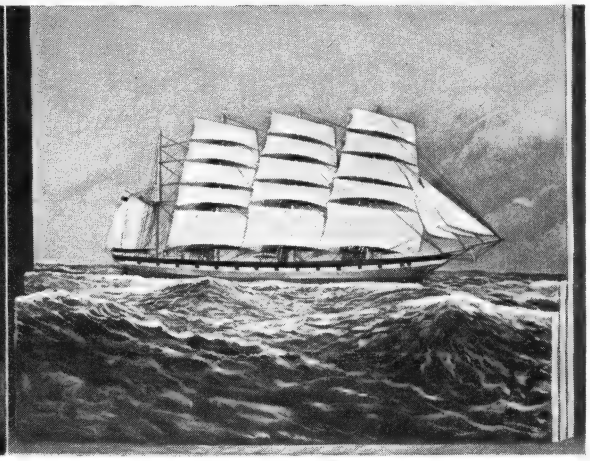
First, the backboard is painted and the hull and sea cut-outs prepared. When the background is dry the hull, mast and sail positions are lightly dotted-in, using a pencil, and the masts and bowsprit—round ones, cut in half with a sharp blade—glued in their proper places. After a careful study of the working drawing, all the port rigging which it is possible to paint on the background should be put in, with an indication of the port bulwarks.

Deck houses, boats and other gadgets are added and the nearer rigging is made up with various sized threads, with the lower ends made fast to little strips of wood glued on, which are afterwards hidden by the bulwarks when the hull is placed in position. The sails are cut out and carved as shown, and when glued on by their "weather edges" they overlap and hide much of the masting and rigging, which some modellers may omit thankfully !

With all its faults this has proved a fascinating technique, and a more ambitious model on similar lines is now being started—none other than *Wanderer* of Liverpool, immortalised in verse by the Poet Laureate.



A scenic model which tells a story. Note how the jibs are set to suit the broken mast



A fine picture model of a four-mast barque with stump t'gallant rig

TRADE TOPICS

Model ships' chandlers

BURLEIGH of Edgware Road, 303, Edgware Road, London, W.2, have available some interesting lists of ships models of particular interest to the beginner or younger modeller.

Two cabin cruisers, made by Yeoman, are the *Mite* and the *Minx*. The *Mite* is 13 in. long with a 4 in. beam and is sold in the form of a pre-fabricated balsa kit costing 12s. 10d. Power is by a small electric motor.

The *Minx* is much the same except that it is larger (20 in long with a 7 in. beam) and can be powered by an 0.5 c.c. diesel engine. Price is 22s. 6d.

This firm also supplies every item a ship modeller is likely to need, including radio control gear, electric, i.c. and c.i. motors, sail material, paints, tools, etc.

Plastic kits

NEWLY arrived on the British market from the U.S.A. is a new name in modelling kits. The Revell Authentic Kits are of a durable plastic, made to scale, and are easily assembled.

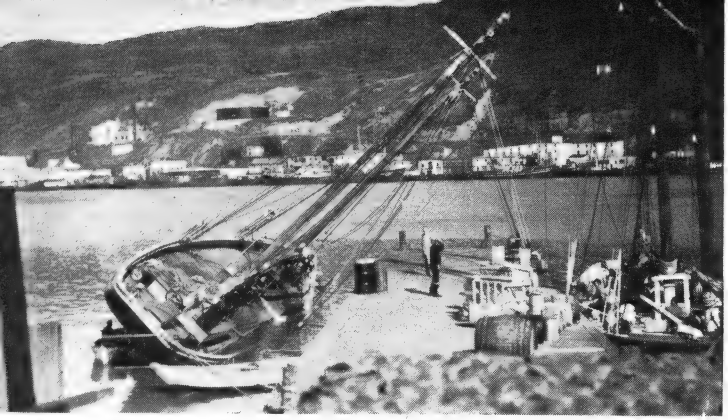
The model chosen by Revell to sell first in Britain is that of the *Nautilus*, the atom-powered guided missile submarine, which was headline news when it was first launched. This model sells at 7s. 6d. and will be followed shortly by other vessels.

Tools for the job

IT is fairly safe to say that cutting tools of one sort or another are those most used by the ship modeller and in the X-acto range there are enough cutters to satisfy every requirement.

There is not space here to review the entire range but tools are available from 3s. (a useful small knife for delicate work) to a comprehensive tool chest costing 87s. 6d.

In between these two extremes there are knives, saws, balsa strippers, planes, spokeshaves, etc. A postcard to Trix Ltd, 11, Old Burlington Street, London, W.1, will bring a catalogue and price list.



"We still heave them down for scrubbing in Newfoundland

A note from Newfoundland

from ERNEST MAUNDER

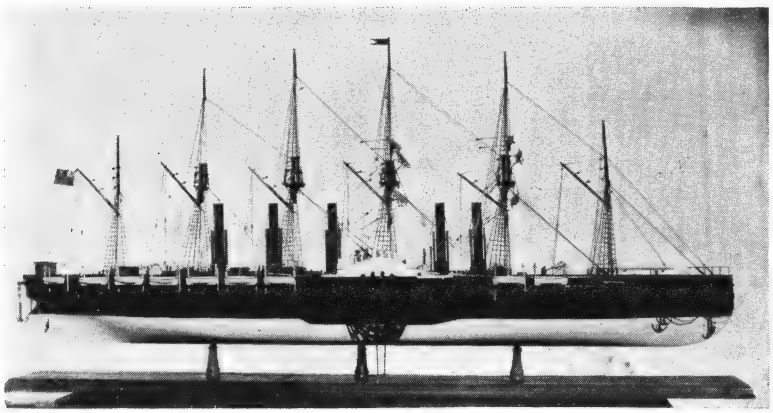
WE are never surprised to learn where copies of SHIPS AND SHIP MODELS have put in an appearance. In recent months we published in Mailboat letters from readers as far apart as Cape Town and Washington. And before that there was some interesting information from correspondents in Northern Italy and Peru.

Now Ernest Maunder, in St John's, Newfoundland, sends us pictures of some very fine models he has made for the local museum in St John's.

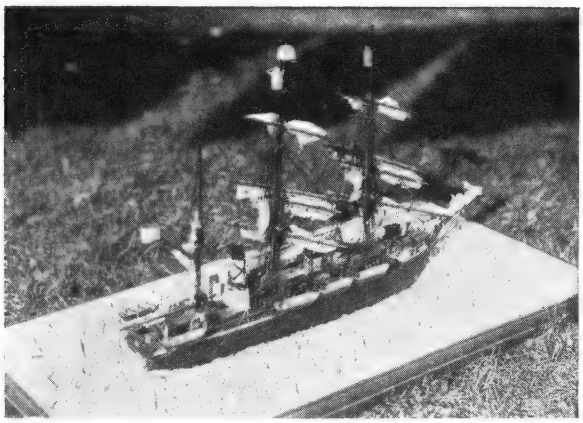
The s.s. *Great Eastern* is a favourite among ship modellers, but the model reproduced here is certainly one to be proud of. It is built to a scale of 15 ft to 1 in., taking eighteen months of spare time to construct.

Captain Scott used the Newfoundland sealer s.s. *Terra Nova* for his South Pole expedition—and this model is built to a scale of 1 ft to $\frac{1}{8}$ in.

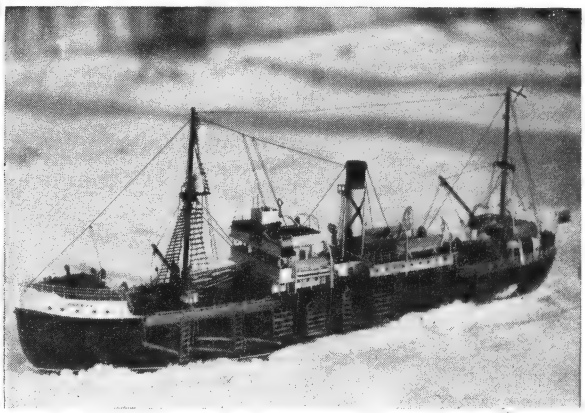
In twelve months Mr Maunder built his model of the sealer s.s. *Imogene* to a scale of 1 ft to 1/6 in. The picture features her in a realistic snowscape.



Left: S.S. 'Great Eastern'—an outstandingly handsome model



Below, left: S.S. 'Terra Nova' used by Scott in his South Pole expedition



Below: S.S. 'Imogene'—a ship built for Arctic conditions

The sailing lifeboats of Norfolk and Suffolk

Two members of the R. N. L. I.—P. H. Spencer and D. P. Branigan—contribute valuable information on an interesting type of rescue craft

LIFEBOATS, lifeboatmen and the Institution which they represent have an almost universal appeal for the British people. It is curious to reflect, therefore, that the evolution of certain types of vessel, which must be counted among the direct forbears of the modern lifeboat, appear to have received scant attention in the hands of the historian.

It is in this category that the Norfolk and Suffolk type should be included. Although universally popular in East Anglia, they never found favour elsewhere during the 150 years of lifeboat service in this country. The sheltering roads of this particular coast with their outlying sandbanks had contributed their share of influence on an intensive inshore boat service which developed as a result of the large coasting traffic which flourished in the halcyon days when sail was at its zenith.

50-ft beach yawls

By the beginning of the nineteenth century powerful beach yawls had evolved. Clinker-built of oak, with two and sometimes three masts carrying dipping lugs, the vessels ranged up to over fifty feet in length. They were perhaps the largest open sailing boats to be found around the coasts of Britain, and were admirably suited to the dangerous and difficult tasks presented by this region.

In view of the numerous disasters to shipping off the East Anglian coast during those early days, it is not surprising that one of the first lifeboat societies came into being in this area.

In 1802 an attempt was made to introduce a rowing lifeboat of the Greathead type, but this was a complete failure ; the crew after one trial trip decided that she was unsuited to their waters and the boat was never used again.

When in 1807 the Suffolk Humane Society was formed, the committee agreed that a sailing lifeboat be constructed and to this end one Lionel Lukin was commissioned as naval architect and, with the able and practical assistance of Barcham, the boat-builder of Lowestoft, emerged the first really effective sailing lifeboat. This notable vessel followed her forbears in build and rig, but the features that made her a lifeboat in the modern sense were her reserve of buoyancy and method of ballasting to give her greater stability.

Sealed casks for air cases

Buoyancy was achieved by utilising sealed casks for air cases secured beneath the thwarts, with a long central channel between them running fore-and-aft along the centre of the boat ; added stability when required was obtained by flooding the boat by pulling out plugs attached to lanyards. Thus when flooded the vessel was virtually carried on her air cases. Decking was formed of long fore-and-aft battens laid on top of the air cases and while the majority of the boats were double enders, a small proportion " enjoyed " transom sterns.

These primary features remained standard in the society's boats for over one hundred years though such refinements as valves for flooding the boat—together with pumps for releasing the ballast, proper air cases and large hollow fenders to give increased stability—were added at such times as their full value was appreciated.

The prototype christened *Frances Ann*, after the daughter of the society's president, was stationed at Lowestoft where she performed her duties in the best traditions of the society. Her leading dimensions were : length 40 ft, beam 10 ft. She carried three masts and twelve oars ; had buoyancy casks of 22 in. dia. and was constructed for £200—which, even allowing for changing money values, seems surprisingly good value.

Although we have a far from comprehensive record of the first boat's early services, it is known that in 1825 she was involved in a serious accident while attending the sloop *Dorset* on Holm Sands. Lying alongside the wreck in an unballasted condition, the lifeboat was suddenly overwhelmed by the sea and before the crew could pull out the plugs to give her the designed stability when flooded and free her of superfluous water, she was completely awash to the gunwales. Fortunately, she survived this and the crew were unscathed, but by a twist of fate some of the rescued men (who must have been congratulating themselves on their timely rescue) were drowned.

Unpleasant but stable

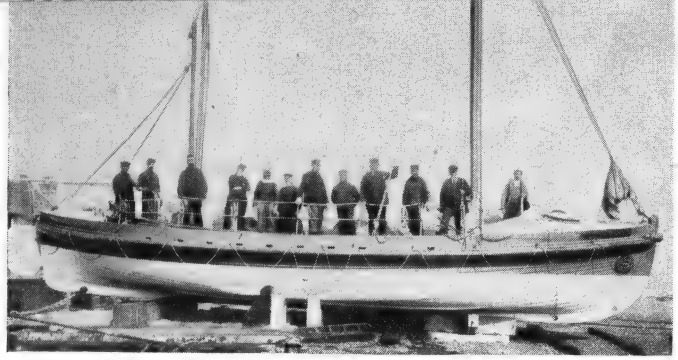
These Norfolk and Suffolk boats were inevitably wet and uncomfortable, as in a lifeboat of this type with some four to five tons of water ballast and a naturally low freeboard the tendency was to go through the sea rather than over it—although these unpleasant conditions were more than offset by their remarkable degree of stability. In fact in a lecture to the United Services Institute in 1861 a Captain Ward stated that an accident in 1858 to the Southwold Lifeboat had been the first for many years.

According to records the lifeboat was returning in a stiff sea and running for the shore before a strong following wind. The crew, having closed the ballast valves, had begun to pump before the boat entered the surf. But before this could be accomplished, the sea lifted the stern of the boat, causing the remaining loose water ballast to run forward, with the result that she broached to and capsized in the surf, drowning two passengers who had accompanied them on this practice passage. Had the boat been free of ballast or completely flooded to the air cases, this unfortunate episode would not have occurred.

Wood not water

The result of the calamity was that the crew of this boat insisted that the water ballasting system be removed and replaced by large baulks of wood securely lashed in position, a method which had occasionally been used in some of the society's other boats.

From this time until the competitive sailing trials at Lowestoft in 1892, when a Norfolk and Suffolk boat was



The Aldeburgh lifeboat, a real old-timer

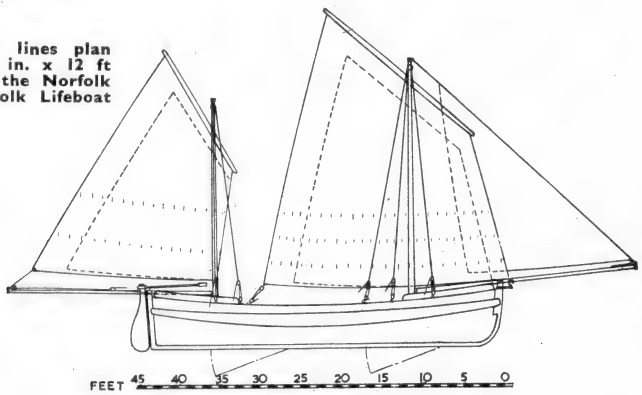
Deck view of the Lowestoft Lifeboat. Note the supports for the masts and waterways in the fender

Above right: The size of the spars shows the amount of sail carried

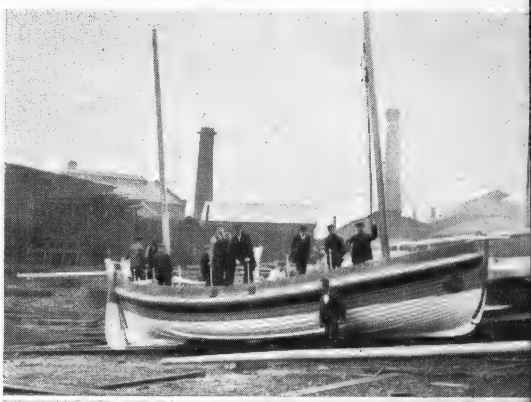
Right: Deck view of the No. 2 Caister Lifeboat

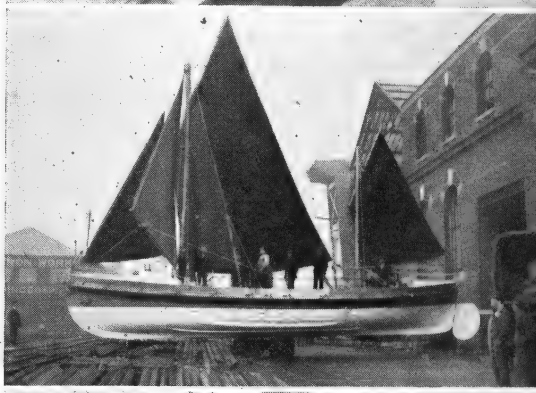
Below, right: Aldeburgh lifeboat 'City of Winchester.' Note the spinnaker and standing fore lug. The rounded stem is similar to the Watson type

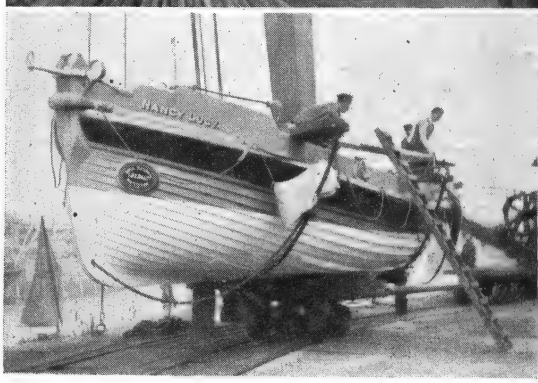
Sail and lines plan (44 ft 6 in. x 12 ft 6 in.) of the Norfolk and Suffolk Lifeboat



LINES PLAN 44-6×12-6 NORFOLK & SUFFOLK LIFEBOAT.







Bow view: Note the iron for the bowsprit and hook for tack of mainsail

matched with one of the new Watson type sailing lifeboats, no radical changes in design took place although there were, of course, improvements of a minor character. The results of the trials clearly demonstrated the superiority of the Watson boat, but the natural conservative tendencies of the lifeboatmen themselves led to the retention of the society's old design with some improved characteristics of the newcomer.

These in the main consisted in enclosing the water ballast in a forward tank and an after tank and the introduction of two drop keels. In one or two cases the skin of the boat was of double-diagonal planking though in the main clinker remained the rule for some years—even until after the Norfolk and Suffolk-type boats were fitted with engines.

As some indication of the measure of the popularity of the design, the last Norfolk and Suffolk sailing lifeboat remained in the service of the Institution until 1936. Some of the mechanised vessels lingered on until after the second world war, the last being sold in 1952.

Outrigger at the bow

Returning to the rig of the vessels, it would appear that this remained unchanged until the 'nineties. The boats continued to carry two dipping lugs and the mizzen mast being so far aft it was necessary to provide an outrigger for the clew of the lug. After the competitive sailing trials the mizzen dipping lug was replaced by a standing lug. At a still later date it became the practice to provide an outrigger at the bow so that a jib could be carried with the summer suit of sails.

The *City of Winchester* built for Aldeburgh was unique in sailing lifeboat history in that so far as it is known she was the only vessel to be provided with a spinnaker, while her foresail was altered to a standing lug.

As is natural most of the lifeboats were built locally, and such names as Beeching of Yarmouth, Sparham of Lowestoft and Ellis of Lowestoft occur frequently in the records. One such boat was, however, built by Messrs Forrest of Limehouse, who, incidentally, were the builders of the approved Peake-designed "self-righter."

In its earlier days the Institution tried to persuade East Anglian lifeboatmen to accept self-righters, but all efforts directed to the introduction of "roly-poly" were rejected in forthright and sailorly fashion.

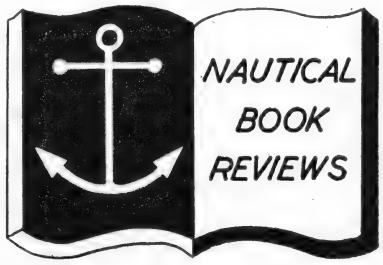
The normal full-time occupations followed by the crews and coxswains were all connected directly with the sea, such as fishing, salvage and hovelling, i.e., assisting small craft, and it is natural therefore that the handling of lifeboats under all conditions came as second nature in their skilful hands.

20-man crews

Frequently when a ship was in distress and there was a possibility of saving both crew and vessel, the lifeboat would put some of her crew aboard in an endeavour to work the ship to safety, which was one of the advantages of the large crew of some twenty men called upon to man a 46 ft sailing lifeboat. It is strange to reflect that eight men only are necessary to handle a large modern twin-screw lifeboat.

Until the introduction of the Watson lifeboats, the boats briefly reviewed were the largest in the service of the Institution and despite the large crews necessary to handle a boat of this type, there was always a more than sufficient number of volunteers.

In addition to the services afforded by the Institution, supplementary assistance to those in distress was provided by local parties of beach men who provided their own boats which, however, differed fundamentally to those designed specifically for the purpose of rescue inasmuch as they had to "work their passage" either as fishing or pleasure craft during the normal intervals. ⚓



PIONEERS OF THE SEVEN SEAS by Alan Villiers. Published by Routledge and Kegan Paul Ltd. Price 16s.

This book tells the stories of the world's famous voyagers—and the vessels they built. The individual accounts are woven skilfully together to give a brief history of the whole subject of ships. Among the very earliest pioneers, of course, were the Phoenicians, and Alan Villiers gives some idea of how they fared in a brief but interesting account of his own experiences on board a ship similar to the vessels used by them.

He goes on to tell of the great voyages made by the immortal sailing pioneers: Columbus, Magellan, Drake and Cook—perhaps the greatest of them all. Next comes the story of the short-lived clipper era and of Donald McKay—the famous designer who perfected this class of ship. The coming of the steamers, of the first transatlantic liners, the tankers, warships and great icebreakers equipped with hydrographic launches and helicopters which are being built today, all make for most interesting and informative reading. The book is well illustrated with drawings and pictures.—M.B.

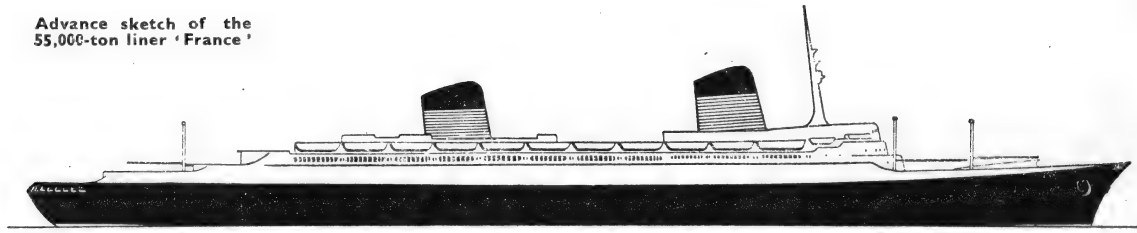
The Annual Dog Watch 1956, No 13, published by The Shiplovers' Society of Victoria, Melbourne, Australia. Price 4s. 6d. Obtainable in Britain from Percival Marshall and Co. Ltd.

The publication of this annual is eagerly looked for, not only in Australia, but by ship lovers all over the world. It can always be depended on for first-hand stories from old seafarers and good pictures of sailing ships and interesting steamers. This issue is no exception, in fact it is, if anything, better than usual. The story of the clipper *Tyburnia* with its description of the ship herself, and Captain Harry Daniels' last voyage in sail when he was mate of the Glasgow ship *Brambletye*, would in themselves put it above the average. Bruce Robertson's story of his childhood on board the *Carlisle Castle* is extra good measure for the sailing ship enthusiast.

Deutschlands Handelsflotte 1956 by K. H. Schwadtke. Published by Eckardt and Messtorff, Hamburg 11, Beim alten Waisenhause 1 (Neptunhaus). Price 3.50 DM.

This is a useful little book, containing a complete list of the merchant ships of more than 700 tons gross of the German Federal Republic as on 9 June, 1956, comprising approximately 680 vessels. Information given includes tonnage, dimensions, power unit, builders, owners, and in addition profile drawings, to the scale of 1 : 1,250, are given of 415 of the ships listed.

Advance sketch of the 55,000-ton liner 'France'



SHIPS IN THE NEWS

★ By LAURENCE DUNN

THE ROYAL NAVY is now being strengthened by the completion of a number of new frigates. These belong to a building programme initiated about the time of the Korean War and consist in all of four different classes. They are of particular interest for they are the Navy's first entirely post-war design.

Of the four classes two are for A/S work, the others being designed as A.A. and aircraft direction vessels. The largest are the six of the Whitby class, which are named *Whitby*, *Torquay*, *Scarborough*, *Tenby*, *Eastbourne* and *Blackpool*. Although the name-ship was the first to be launched, H.M.S. *Torquay* was the first to be completed, being accepted into service in May 1956. The Whitby class, though primarily A/S ships, have limited A.A. defence and also facilities for directing A/S aircraft. They are highly manoeuvrable and are designed to maintain high speed even in heavy seas. Of all-welded construction, they have been prefabricated in a manner which allows for rapid construction.

The *Torquay* has twin screws and twin rudders and is powered by geared turbines which are exceptionally economical at cruising speed. For starting and at slow speeds cruising turbines are used, but at a given speed these are switched over to the main turbines which are of 30,000 s.h.p. The ship was built by Harland and Wolff, Belfast. The turbines, though built there too, were designed by English Electric. The frigate is armed with a twin 4.5 in. gun mounting and a twin 40 mm. A.A. gun. There are also two three-barrelled A/S mortars, which can be trained over a wider arc than earlier types. Later two twin- and eight single-torpedo tubes will be fitted, but when I was travelling in the ship recently only the deck fittings were in place. The overall length is 370 ft and breadth 41 ft. In lieu of exact draught figures, which have not been released, it could be seen that the boot-topping finished at the 16 ft mark. Tonnage figures are not now officially released, but the *Torquay's* displacement is probably around 2,000 tons. Her speed is given as "over 30 knots." The ship's normal peacetime complement is nine officers and 180 men.

To the modeller the ship offers much that is new and interesting. The anchors are recessed and are of a fresh pattern. Deck and hull sides join not in a sharp angle, but in a small-radius curve. Prominent features of the two-level fo'c'sle are three breakwaters, the third being abreast the gun mounting. In photographs structural shapes are apt to look more complex than they are in fact, and on the *Torquay* most are rectangular. Exceptions are the rounded front to the bridge deck and the vee-shaped enclosed compass platform. The latter at its forward edge has a small U-shaped bulge.

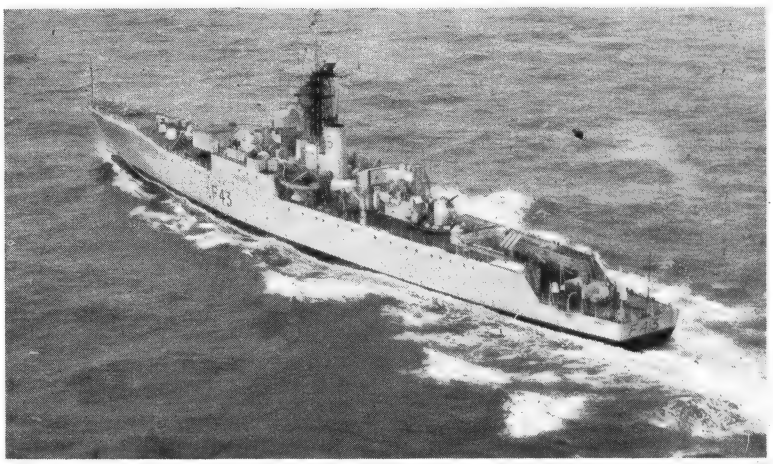
The base of the control tower is circular, as is the platform round the base of the A.A. guns. A feature that is not clearly visible in the picture is a narrow bridge deck extension either side of the funnel. The boats, which partly hide this, comprise one motor launch (port) and one 27 ft whaler (starboard), while beneath the latter is a small sailing dinghy. At the after end of the upper deck are racks for the carriage of self-inflatable rafts. One small feature aft on the lower deck that calls for mention is the flare launcher, which is surrounded by rectangular bulwarks.

The exterior decks are finished with a new abrasive anti-slip surface; here the main walkways are left their natural brown, but other areas are mostly painted a dark green. One other colour note concerns the numeral painted on the flat-sided funnel. This, the flotilla number, is red.

An Italian newcomer

AN INTERESTING ASPECT of the passenger trade between Europe and the Americas is the remarkable number of new lines which have come into being since the war. The three pre-war giants, the Hamburg-Amerika, the Hamburg South American and the North German Lloyd, are more or less in eclipse so far as large passenger tonnage is concerned, but any gap caused by this must be more than filled by the newcomers. Their

The frigate H.M.S. 'Torquay'



list is truly formidable and includes the Greek and Home Lines and the latter's offshoot, the National Hellenic American Line, and the Arosa, Europe-Canada, Costa, Italnavi and Zim lines. Other existing firms have expanded, while soon there will be a new Danish competitor.

Other important newcomers are the Fratelli Grimaldi Line and its subsidiary, the Sicula Oceanica S.A. (SI.O.SA. Line), some of whose ships call at British channel ports. In a past issue of SHIPS AND SHIP MODELS mention was made of the 19,000 ton *Venezuela*, which was purchased from Canadian Pacific.

Two others of smaller size were bought from a French firm, the Soc. Generale de Transports Maritimes. These were the *Florida* and *Campana*, which were renamed *Ascania* and *Irpinia*. The former, a 9,330 ton vessel built in 1926, is temporarily employed as a troopship by the French Government, but the *Irpinia* has already made a name for herself on the West Indies run. Built on the Tyne in 1929 by Swan Hunters, she was originally used on the South American trade. A twin-screw turbine driven ship, she had accommodation for over 400 passengers in three classes, as well as 800 in the 'tween decks.

Immobilised at Buenos Aires early in the war, she was later requisitioned by the Argentine Government and renamed *Rio Jachal*. Subsequently returned to the S.G.T.M., she was kept on the South American trade until replaced in 1951 by newer tonnage. She was then switched to the Chargeurs Reunis Far Eastern run. Considerable alterations were made following her purchase last year and these, with the closing of the forward well and fitting of a raked stem, have increased her gross tonnage to 12,279. She now carries first and tourist-class passengers and operates to the Antilles, Central America and the West Indies, with occasional visits to New York. Her European terminals vary, being sometimes Genoa and at other times Rotterdam, on which occasions she calls at either Southampton or Plymouth.

New liner for France

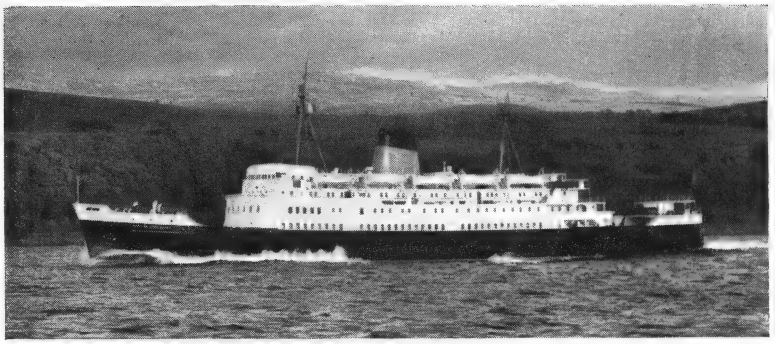
TURNING from the existing to the future, a preliminary drawing has been issued of the French Line's new 55,000 ton transatlantic giant. Laid down in September at the Penhoet yard of the Chantiers de l'Atlantique, this ship, to be named *France*, will have a length of 984 ft and a breadth of 114 ft. She will cost around £27 million and it is planned that she will be ready for service in 1959.

Her geared turbines will have an output of approximately 150,000 h.p. and give a service speed of 30 knots. Accommodation will be provided for 2,000 passengers, of which under 500 will be first class and the rest tourist class. The latter will have the full run of the ship and the use of swimming pools, dance floors, bars and a cinema, the difference being in the smaller size of their cabins.

The profile of the new ship shows no revolutionary change of style but rather a happy combination of many of the *Normandie's* features combined with those of the post-war *Antilles* and *Flandres*. Stem and stern are very reminiscent of the first named, as is the shaping of the foredeck, but it will be noted that there is only one mast, stepped on the bridge. Following the successful results on the company's *Ville de Marseille*, the new liner will be fitted with two sets of Denny-Brown stabilisers.

She will be the company's third ship to be so named. The first *France*, built in 1864, was a two-funnelled three-masted vessel which was originally fitted with paddles, but was converted to screw propulsion in 1873. The second, a handsome four-funnelled liner of 23,600 tons, had a very successful career on the New York service, lasting from 1912 to 1934.

'Irpinia' at Southampton —a dignified Italian ship



The 'Duke of Lancaster'—note bow wave formation

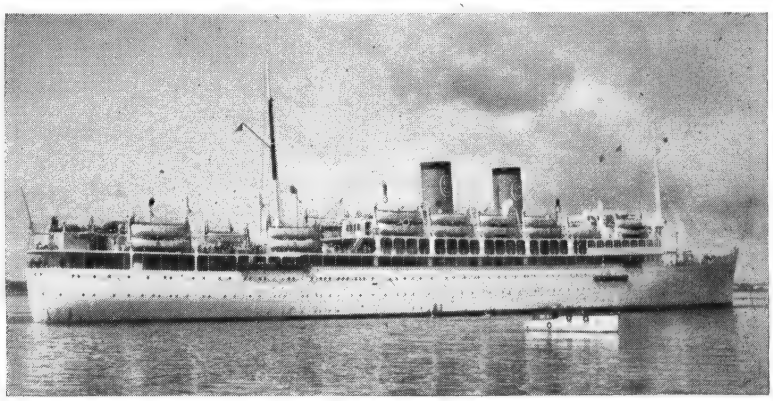
Debut of the 'Duke of Lancaster'

THE first of three new Dukes for British Railways' overnight crossing between Heysham and Belfast entered service late in August. The *Duke of Lancaster*, as she is named, has been built by Harland and Wolff, Belfast, and will be followed by two others, the *Duke of Argyll* and the *Duke of Rothesay*—both products of the Clyde.

The new ship accommodates 600 first and 1,200 second-class passengers and brings a new standard of comfort to this route which was started by the Midland Railway Company in 1904. Apart from interruptions caused by war the Heysham service has been maintained since 1928 by an earlier trio bearing the same names. Last spring it was reported that these had been sold to Greece, but the deal fell through and they have since been sold to Bisco for breaking up. They are being withdrawn from service as the new ships become ready.

Costing over £4 million the new Dukes measure 375 ft in length o.a. by 55 ft beam. They have a gross tonnage of approximately 5,075 and can carry 450 tons of general cargo. Although the speed—21 knots—is the same as that of the older ships, the displacement has risen by over 1,200 tons. Besides numerous public rooms, including a cafeteria-lounge for second-class passengers, the *Duke of Lancaster* has cabins for 240 first-class and 214 second-class passengers. The ship has twin screws, geared turbines of 10,500 s.h.p. and two oil-fired boilers. Initially, much trouble was experienced with the turbines and this delayed delivery by about two months.

As on most cross-channel ships, there is a bow rudder for use when berthing, but a point of greater appeal to passengers is the fitting of stabilisers. Externally the *Duke of Lancaster* brings several features that are new to the Irish crossing, notably the smoke-deflecting funnel top, the sloping bridge front and the fitting of two tripod masts.



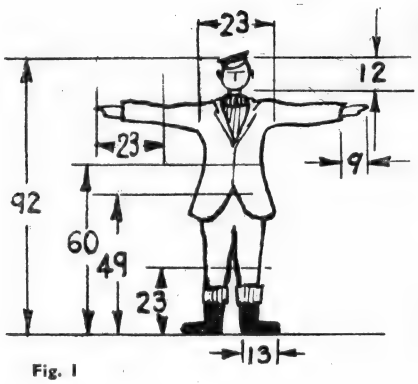


Fig. 1

How to make model sailors

Fig. 2

You can add a touch of realism to your scenic models. But, urges EWART C. FREESTON, your crewmen must look *real*

THOUGH this is strictly speaking not ship modelling it is an adjunct that has come into prominence within the last few years, for some models—especially those in a scenic setting—have been shown with sailors in various attitudes working about the ship.

From one point of view a model of a vessel at sea without a crew is an anachronism ; apart from the fact that such a model can look unreal. From another viewpoint one or two men on the deck put the whole model in perspective, for you then have a visible yardstick by which you can judge the size of the ship and its component parts. I am not suggesting that every scenic model should have a crew aboard—that is a point the modeller must decide for himself. He may disagree violently with the whole theory !

The materials

But for those who are interested in the idea the following will illustrate the method I have used with entire satisfaction. The materials required are : some stiff brass wire, a quantity of Barbola paste obtainable from Winsor and Newton Ltd. or Messrs. Reeves (a small tin will go a very long way), a few modelling tools easily made up from orange sticks or something similar sharpened to a tapering point or a chisel end or any other suitable shape, water colours and a small paint brush.

First, however, it is necessary to know something about the proportions of the human frame ; and I expect many readers will be surprised at the relationship existing between the various parts of the body in what would be an average man of 5 ft 9 in. in height. In Fig. 1 is a sketch of such a figure drawn to a scale of $\frac{1}{4}$ in. = 1 ft. All measurements are in 64ths and therefore the height is 92. The arms fully extended will also be 92 ; head 12 ; foot 13 ; hand 9 ; across shoulders 23 ; across hips 15 ; forearm 23 ; foot to knee 23 ; to hips 49 ; to waist 60. The eyes are halfway down the face and the ears are at the same level. These are the principal proportions on which to base your figure.

Pose, please !

To make the figures, solder—I use hard solder—three pieces of stiff brass wire to the shape of Fig. 2. This is called the armature. Make the leg wires about $\frac{1}{4}$ in. too long and sharpen the points. Now bend the armature into the position you wish to reproduce, get a friend to pose for you or pose yourself in front of a large mirror. Then press the pointed ends into a strip of wood so that you will be able to manipulate the figure without constant handling.

If the figure is to be seated (as a man rowing) glue on an additional block of wood of the correct height as a further support, or, if it is of a sailor climbing a ladder or walking up steps, a similar support should be arranged under one of the feet. This is necessary so that when the finished figure is fixed in place it will be in the posture decided on and fit in the position prepared for it without risk of damage by straining the limbs.

Now cover the armature with Barbola paste. There is no need to be fussy over detail at this stage, as the final modelling will follow when you have got the main proportions right. This is most important, for slight adjustments in the attitude can be made later on. Be reasonably liberal in covering the armature because the paste will shrink a good deal as it hardens and you will have otherwise a thin and skinny figure. Besides which I find that it is easier to remove a slight excess of paste than to build up a large area.

It is unlikely that you will be able to finish a figure at one sitting, but this does not matter because by the application of water on a small paint brush the paste can be softened locally sufficient to modify any part or all of the figure. Aim at getting a certain amount of life in your figure ; do not let it become too stiff and formal. If you need to bend an arm or leg a trifle do not be afraid to break it at a joint, say the elbow or the knee because by the addition of a thin paste of the Barbola mixed with water you can fill up any crack.

Incorporate in the figure its clothes if it is at a small scale and by the use of a thin paste add such items as the revers or collar of a coat, a belt or the creases in the clothing. If the figure is to have a hat or cap this, too, can be built up in the same way. Do not attempt to dress it afterwards with cloth, silk or tissue paper for it never seems to look right because such things will not hang properly in natural folds. Make the head first as an ovoid and then with the modelling tools shape the features. If necessary the nose and ears can be added as a tiny blob of paste and moulded in at the same time.

White foundation

Leave the completed figure to harden for several days and then you can start to paint it. Use good-quality water colours, but do not apply too wet. First of all paint the whole figure white, this will neutralise the natural greyish colour of the paste. You will now have a good foundation on which you can go ahead and paint the clothes. You can accentuate the creases in the clothes by the addition of streaks of darker colour after having painted the whole garment to the shade chosen. The flesh is most suitably coloured by using indian red and raw sienna or vermilion and yellow ochre if a European is being modelled.

When the entire figure has been painted it will be found an advantage to give it a coat of matt varnish because this will fix the colour and prevent it being rubbed off. Finally, the figure can be placed on the deck after gently easing it off the temporary working stick. Press the pointed wires into the pre-determined position and add a touch of glue for further security.

★ *by C. Money*

GAFFS and BOOMS

Some suggestions for the reader who contemplates modelling a schooner

THE SCHOONER proves its handiness for a sailing model as it does for a prototype. There is not the awkward spread of yards, and an uninstructed mate or helpful spectator can put her over on the other tack by shifting over the bow as with a yacht.

Schooners will report "distance made good" in any sort of wind, cannot be taken aback, and present a finer sight in the eyes of some people than the square rig. There are schooner types covering many decades and nationalities, and for those who are inspired by lofty masts and precise rigging, the maximum number is seven. Choose the *T.W. Lawson* and you will be able to boast without fear that you have built a super-schooner.

Bermudan rigged or staysail

Modellers who plan a schooner also have the choice of a really modern-style Bermudan rigged or staysail schooner with stump jiboom. The latter is a little less glamorous, perhaps, but it is nevertheless compact and efficient and still possesses that combination of grace and power which accompanies slender spars, well set canvas and a sea-kindly hull.

The yacht type provides a wealth of high quality wood and metal work about the decks, and maybe an auxiliary engine, too, under the cockpit. The old order changeth, but the sail enthusiast can still find good prototypes and keep up to date.

Although the schooner is simpler to operate and, apparently, simpler to rig, there are complications. A standing gaff would be unacceptable to a serious model maker, but he may be hesitant in rigging between four and seven blocks to raise or lower one sail A compromise is effected by arranging one, or at most two dummy tackles as in Fig. 1. The single halyard falls are bent to a ring bowsie sliding on a backstay. When sails are lowered and furled, a short length of thin rubber-covered flex is useful as a gasket. Gaff topsails are best rigged by hooks and loops at the corners.

The normal sliding sheet tackle as rigged on model yachts is sometimes difficult to use on a schooner owing to the presence of deckhouses, chocked dinghies, etc., and it is better to put them all on to a stay rigged like a low lifeline along the deck at one side (Fig. 2).

Another problem is the changing over of jib sheets. For this operation double sheets from flying, outer and inner jibs should be led to a yoke mounted on the fore deck or mast. The position of each sheet on the yoke will depend on the amount of overlap of each sail. A spring-loaded rack or wingnut will be needed to lock the yoke in the position required (Fig. 3).

Owing to the overhang of the aftermost boom on a schooner and its constant use, vane control is difficult, but the Braine gear, or an adaptation of it, can be fitted with advantage. There are other means of moving the tiller via the boom. I describe here an idea I have tried, but whether it is original or not I do not know. I reasoned that there is considerable leverage at the inner end of the boom, enough for transmission from a crosspiece fitted under the gooseneck or jaws, and connected direct with a single rod or twin lines to the steering quadrant. The lines are not crossed, the sheet is spring-loaded, adjustable and hooked to the normal horse or eye (Fig. 4).

Another simple method is to hook the sheet to a tiller made to extend abaft the rudder head. In this case the tiller itself is spring-loaded and adjustable stops are fitted either side. Each method will check the tendency of the ship to luff in the stronger squalls.

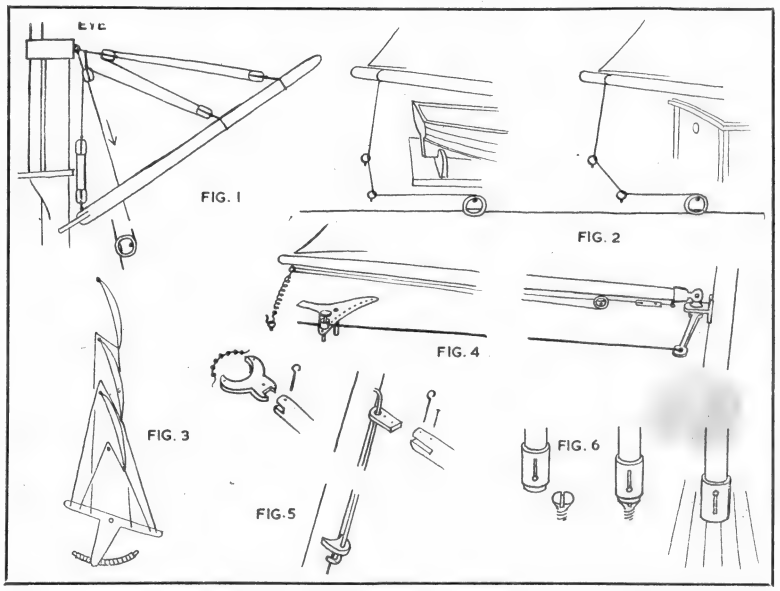
Fig. 5 gives details of two types of gaff and boom fittings suitable for sailing models. Hard wearing metals should be used and wooden parts should have chafing gear.

The length of schooner masts and their shrouds permits them to be unstepped to lie on deck without detaching any standing rigging except for topmast stays. This is possible if the masts are stepped on deck, and here I put forward a method applicable to a schooner.

Stepped or woodscrew head

The mast is stepped on the head of an ordinary woodscrew screwed into the deck, the head of the screw preferably being the same diameter as the heel of the mast. If it is provided with a slot for a nailhead, the tube will not be lost and will slide up and down for the operation illustrated in Fig. 6. When necessary slackness can be taken up on the shrouds by half a turn of the screw. If the topmasts are fitted with the orthodox fid and the bowsprit made to be taken inboard, the schooner model should pack up into a convenient parcel for transport.

Let your imagination help you to change that $\frac{3}{8}$ in. dowel into 24 in. Oregon pine—and in no time at all you will be fighting for every inch of sea room to get clear of dreaded Cape Hatteras !



Ships and Ship Models Mailboat

● **Letters of general interest on maritime matters are welcomed. A nom de plume may be used if desired, but the name and address of the sender must accompany the letter. The Editor does not accept responsibility for the views expressed by correspondents**

SIR,—I received yesterday my copy of SHIPS AND SHIP MODELS and noted your answer to S.A.C. [Readers' Queries, September.] But I think you do not give all the facts.

The shells of the Crimean War could have been fired from the Lancaster gun (a few were in use) in which both the shell and the bore were oval, the bore being twisted though not actually rifled as such. The defect of this gun was that the shells sometimes jammed in the bore and burst the gun.

In 1854 Mr Armstrong proposed, and later built, a true rifled gun, a breech-loader which fired lead—later lead-coated iron—shot to take the rifling. Mr Whitworth also at this time made rifled guns with a hexagonal bore and shell, the bore being twisted as in the Lancaster gun. A contemporary account claimed that these guns could be either 6-, 12- or 18-pounders merely by lengthening the shot.

By 1874 rifled breech-loaders were extensively used on the Continent, but in England rifled muzzle-loaders were in vogue, the early breech-loaders having been condemned. These fired both shot and shell of the type we know today, save that the English shells had studs to engage the rifling.

With regard to the article by Mr J. A. Young, I should like to challenge his statement that battle cruisers were the brain child of Admiral J. A. Fisher. The name may have been, but the idea was not. *Hector* and *Valiant* (of 1862) were battle cruisers as were *Centurion* and *Barfleur*, and the Canopus-class ships. All were smaller, faster and more lightly armoured editions of contemporary battleships and were known as second-class battleships.

As for *Seydlitz*, she escaped as a result of the courage and promptness of her crew, in flooding the magazine of the turrets hit.

Presumably the British battle cruisers which blew up were unable to prevent the "flash" from burning charges reaching the magazines. The Germans at Jutland—as a result of the *Dogger* and the *Seydlitz*—had taken precautions.

Commander Kemp in *H.M. Destroyers* describes this well.

Cape Town, South Africa. J. PEARSON.

DIESEL FISHING SKIFF

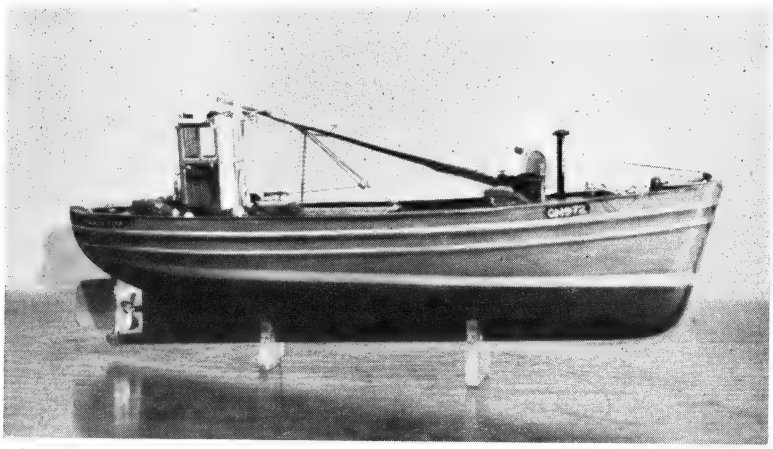
SIR,—I am enclosing a picture of my model of a Scottish diesel fishing skiff which I have built from Harold Underhill's plans. I have reduced his scale to 3 ft = 1 in., making a working model 15 in. long—a scale which I found very suitable for this type of model. The model is driven by a Mighty Midget motor with gearing reduced 2 : 1 and powered by two No 8 batteries connected to give 4½ volts ; this gives a very realistic scale speed.

Access to the batteries is through the fish hatch and the switch is concealed by the forward starboard fuel cover. The propeller shaft is oiled by removing the aft companion, and the steering, which is spring loaded, is by the aft bollard. The wheelhouse windows and light glasses were made from Perspex and the pulley blocks from boxwood. Other deck fittings were made from the usual odds and ends to be found in a model maker's junk box.

Since completing this model I have started on another of Mr Underhill's magnificent plans, that of a Clyde Puffer to the scale of ¼ in. to 1 ft, which first appeared in your journal.

Edinburgh, 11. JAMES Y. DOIG.

The 15 in. working model 'North Star.' See letter "Diesel fishing skiff"



CLARIFICATION, PLEASE

SIR,—The September issue of your excellent journal has just arrived. But I must take exception to the remarks in Jason's Notes on the ship *Marco Polo*. If Jason means by American built, a ship built in North America, he is correct. However, as a Canadian I have noticed that the inhabitants of the United Kingdom usually mean the United States of America when using the expression "America" or "American."

Marco Polo was built by James Smith at Marsh Creek, Courtenay Bay, St John, New Brunswick, Canada, in 1850-51. A considerable amount of information on this ship and other famous Canadian-built and manned ships will be found in "Wooden Ships and Iron Men" and "In the Wake of the Windships," both by Frederick William Wallace.

It is also worth noting that Donald McKay who built *Lightning*, *James Barnes* and many other famous U.S.A. ships, was born in Nova Scotia at Jordan River, near Shellinane and learnt his profession as a ship builder there. Good wooden ships are still being built in Nova Scotia to this day, and long may this continue.

I raise these points as it is sometimes forgotten that there is a sea story and tradition north of the Canada-U.S.A. border. The Maritime Museum of Canada at Halifax, and the Naval Maritime Museum at Esquimalt are both doing their best to preserve and display the sea story of Canada—which goes back to the Vikings.

Esquimalt, British Columbia, Canada. H. F. PULLEN.

THE DUTCH PAMIR

SIR,—When the *Pamir* is mentioned these days one tends to think of the

The 'Pamir' during her recent call at Middlesbrough. See "The Dutch Pamir"

four-masted barque, one of the few survivors of the sail era. There are, however, three Pamirs in Lloyd's Register, and the one most likely to be seen in this country is the 300 ton (gross) Dutch motor vessel. Built only six years ago, she is a clean and attractive looking ship. The picture shows her in the Tees at Middlesbrough on Friday, September 22.

The *Pamir* regularly calls in at several east coast ports collecting general cargo and then returning to the Continent. This time she had come from Grangemouth and after leaving Middlesbrough she called at Grimsby before going to Rouen where she arrived on September 27. The very mixed cargo included sewing machines, non-ferrous ingots and boiler lagging.

"You can't get a quart into a pint pot!" was the exclamation of the foreman as he looked from the loaded railway wagons to the *Pamir's* hold which was already half full. But with some reshuffling all was taken aboard. As the evening closed in, the *Pamir* sailed down the river after a stay of only eight hours.

Middlesbrough, P. BARTON.
Yorks.

CUTTER ENSIGN

SIR,—I refer to the article by Alec A. Purves, "Flags at the Exhibition."

He criticises the ensign on the revenue cutter *Buttercup* in so far as the method of hoisting. But hasn't he overlooked the fact that the Blue Ensign, defaced with the castellated gate, did not originate until 1943 or 44? Prior to that time the customs or revenue flag was a Blue Ensign defaced with a gold crown. How long this flag was in service I do not know. Most certainly not circa 1810. For surely the Red, Blue, and White Ensigns were attributed to the Navy—being flags under which squadrons operated.

It would be interesting to discover what flags *Buttercup* would have been flying at that year.

Hartlepool, C. CODNER.
Co. Durham.

THE DREADNOUGHTS

SIR,—Having read Mr. Young's article on these ships in a recent issue, I feel that the man who made them a practical proposition deserves an honourable mention.

The *Dreadnought* was not the original idea of Admiral Fisher, whose genius was responsible for many sweeping changes in the Royal Navy. It was no doubt foreshadowed by designs like those of the Lord Nelson class. But the man who brought the idea down to a working proposition was Colonel Cuniberti, constructor to the Italian Navy. He published his ideas in *Jane's Fighting Ships* for 1903 and built the *Vittorio Emanuele* III (12,625 tons) which conformed to a great extent with these ideas.

She proved a highly successful ship and he drew up plans for a larger class of ship, the Amalfi class. In his article for *Jane's*, he suggested that a rich and powerful nation like Britain could afford to build ships of about 17,000 tons, with 12 in. armour, guns of 12 in. calibre and a speed of about 24 knots. It is interesting to compare these figures with those given for the *Dreadnought* and the *Invincible* in the accompanying table.

His ideas were at first treated with scepticism, but during the Russo-Japanese War the Japanese announced that they had laid down two battleships which were to be more or less on the lines suggested by Cuniberti. At the same time the United States ordered the *South Carolina* and *Michigan* which were influenced by Cuniberti.

The news of the building of these ships was public property before the British laid down the *Dreadnought*. However, she was built more quickly than the others and was, therefore, the first of her type. The secrecy which surrounded her construction was unnecessary and melodramatic. Historically, the great point about her is that she shows a quick appreciation of new conditions on the part of the Admiralty, for which Lord Fisher must be given most of the credit. A great novelty in the *Dreadnought* was the fitting of turbines, as she was the first large warship ever to be so fitted. Previously they had only been fitted in some small cruisers.

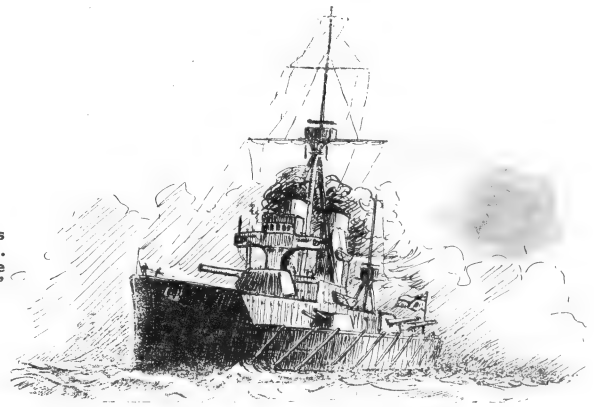
One interesting effect which the *Dreadnought* had was that she postponed the commencement of the Great War. The Germans, who also claimed to be the originators of the Dreadnoughts, began to build similar ships as a counter measure. The *Nassau* was one of the first of these. The Kiel Canal was too narrow to take these large ships, so the Germans were obliged to spend a great deal of time and money in widening it before they were in a position to begin hostilities.

Thorganby, PETER G. WARHAM.
Yorks.

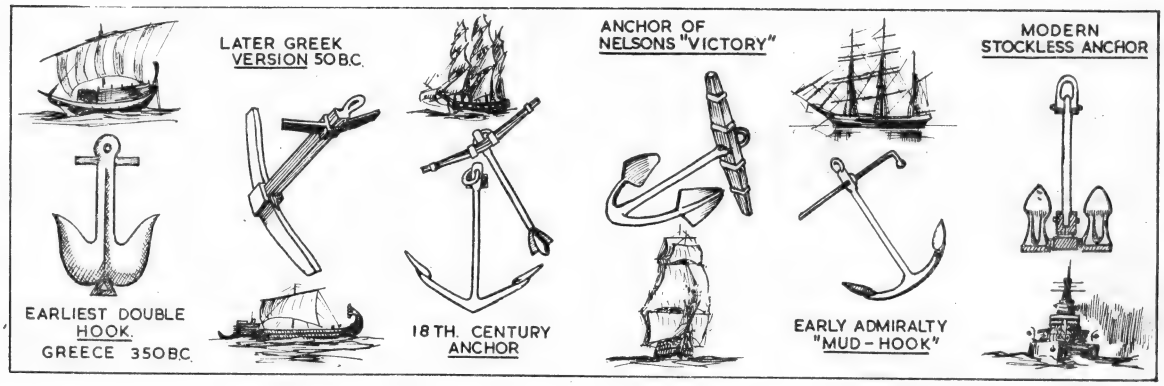
Designs for original Dreadnoughts

Type	Tons Displacement	Armament	Armour	Speed Knots	Laid Down
Cuniberti (as built) ..	17,000	12—12 in. 18—12 pdr.	12 in.	24	c. 1903
Dreadnought	17,900	10—12 in. 27—12 pdr.	11 in.	21	1905
Invincible	17,250	8—12 in. 16—4 in.	7 in.	25	1906

[These figures are taken from Jane's]



Peter G. Warham's impression of H.M.S. 'Dreadnought.' See 'The Dreadnoughts'



Anchors aweigh!

Though essentially a review, this article by DAVID GUNSTON aims at stimulating the interest of readers whose knowledge of the anchor is limited

THE word anchor is derived from a Greek term meaning a hook, but not all anchors have been of the familiar shape. The early Greeks devised such anchors as large boulders of convenient shape for handling, wicker baskets filled with stones, and, later, logs loaded with lead—all let down over the sides of their vessels by ropes. These primitive anchors held ships fast merely by weight and friction on the bottom and were therefore of little use in a strong swell.

It was Midas, King of Phrygia in Asia Minor, who first introduced a crude iron hook, true forerunner of the anchor of today. At first, however, only one-armed hooks were used.

Broke at crown

This early iron hook, first single and later with two opposite arms, was used for centuries with little radical improvement, and as the workmanship was poor owing to inefficient methods of welding, there frequently occurred a break at the crown when the straight arms became embedded or pulled sharply.

The iron was mostly of poor quality and the stock was made of layers of wood bound together with iron bands. This sort of anchor was used right up to the beginning of the nineteenth century. The anchor from Nelson's *Victory*, now a monument on the sea front at Portsmouth, is a good example of this early type; it is so slender that one wonders how even two or more like it held the ship in a swell. These T-shaped anchors were hardly designed for any great strain, and the wide V-shaped contraptions that had made their appearance in Scandinavia were little better.

Genius in the dockyard

In fact, little real progress in anchor design was made until 1813. The credit goes to a man named Pering, a clerk in Plymouth Dockyard. He wrote, in that year, "I saw hundreds of broken anchors repaired in Plymouth Yard, as well as numbers repaired in other yards, demonstrating the conviction that there must be something wrong in workmanship, undue proportions or the manner of combining materials." He was, of course, quite right. Soon, he himself had designed an anchor with curved arms.

This was a great advance, for the curvature gave added strength. This type was the immediate ancestor of the old Admiralty pattern anchor, affectionately known as the "Admiralty Mudhook." Pering's development spurred on other inventors and was followed by a host of other new ideas.

About 1831 a Lieutenant Rodgers patented his "hollow-shanked anchor," which had a large loophole in the centre of the shank filled with wood and hooped over with iron for strength. This was based on the fallacious notion that a wooden core was stronger.

It is significant that all the designers at this time aimed at more strength for as iron and steam gradually replaced wood and sail the side of ships grew and, with it, the strain placed on their anchors. Yet research into better types was carried out only by far-sighted men, working without real encouragement from the authorities.

Many queer kinds of anchor appeared, but few of them came to anything. Rodgers invented another which was merely an enlarged version of the navvy's pick without either flukes or palms. But later he did bring out a more serviceable model with very small flukes, which he claimed gripped better than large ones. This variation did come into use and proved its worth. In 1832 a 37-cwt anchor consisting of eleven pieces was made, and found to work successfully, while a few years later a Captain Hall patented one with detachable arms for ease in stowing.

But none of these really answered the needs of the time. It was 1846 before a genius appeared in a Mr. Porter. He took out a patent for an anchor with movable pivoted arms with their plane of motion perpendicular to the stock. Among its many advantages was the fact that it really was stronger in action and would not easily foul the cable—one of the many faults of the older types.

Lesson of the "Queen"

Porter's anchor gradually became widely adopted as the authorities grew more aware of the need for efficient anchoring of large vessels. This need was brought home to them

most strongly one day in March, 1848, when the Morning Chronicle reported : " H.M.S. *Queen*, the largest and, some say, the finest three-decker afloat, ran aground in a storm and was wrecked. It was found she had put to sea without a Porter anchor." This radical design was later improved by another pioneer named Trotman, whose design came into general use in the merchant fleet.

American engineers had also been busy during these years, but their designs were superseded by the invention of a French designer, M. Martin. This was the first self-canting and close-stowing anchor, having movable arms lying on the same plane as the stock, but able to turn round either side of it through an angle of 45 deg. Projections on the ends of the arms called tripping palms caused both flukes to grip the sea bed, which experience proved this model did more securely than any other of equal weight. Martin's anchor was simple to stow on its bed after hauling up, a factor that meant a great deal in the days before steam capstans.

Finally realising the importance of adequate anchors on all ships—after more than a century of apathy—the government of the day was soon to make compulsory, under the Chain, Cable and Anchors Acts of 1864-1874, the thorough testing of all anchors over 1½ cwt in weight. At last a standard of efficiency and safety was reached.

Lloyd's ruling

Lloyd's followed suit by ruling that anchor stocks must be not less than one-fifth of the weight of the complete anchor on any ship they covered. They also insisted on all their vessels over 300 tons carrying three bower, a kedge and a stream anchor.

Today, of course, the stockless anchor has almost entirely replaced the older types on ocean-going ships, but the original design, in the form of kedges, and anchors for yachts and small craft generally, still survives to prove its worth. In 1885 the first trials of stockless anchors began, but it was not until 1903 that this design was generally adopted by the Royal Navy, soon to be followed by all merchant vessels.

Full protection

Stockless anchors have the obvious advantages of easier handling and greater strength through the more solid arms and flukes. They have done away with the need for all the anchorbeds, davits, catheads and other gear, and they stow easily at the top of the hawser pipe. Yet most stockless anchors are lighter than the old types in proportion to their relative size, and take up far less room on board, leaving a clear fo'c'sle. The main disadvantage—their need for a much greater weight of cable—has been overcome by mechanical capstan handling.

To hold the huge ships of today needs anchors capable of withstanding immense strains, but in the precision-made stockless job all vessels have a safe protection.

READERS' QUERIES

Chain shot at sea

Q Is it true that chain shot was not used by the Royal Navy chiefly because it was regarded as " unsporting " ? Further, can you tell me whether this type of shot was as effective for dismasting ships as it would seem to be. As far as I know, it was used by the U.S. Navy in the American War of Independence, but I have not seen any references to it after that period.—G.B.D., Wood Green, London.

A It is highly probable that certain types of naval officer considered it " unsporting " to use chain shot and certain gunners might consider it a reflection on their ability to register a direct hit with round shot. Chain shot might damage an upper mast but would not make much impression on a lower mast—which was sometimes as much as 36 in. in diameter—though it could do considerable damage to rigging and sails.

Feathered propellers

Q I am a novice in shipping matters, so perhaps this question will smack of the absurd ! An aircraft propeller can be feathered in case of engine trouble, so that it presents no resistance to the wind. Can the same be done with a ship's propeller or is there no point in it ?—V.W., Bristol.

A In the early days of ship's propulsion the propeller was either feathered or withdrawn into the ship's hull to reduce resistance when sail only was being used. Nowadays variable pitch propellers are frequently fitted, especially in motor yachts and small craft to suit varying conditions.

Drawings wanted

Q I am interested in building a model called *Fairlie Bluff*, which is 47 in. o.a.l., but I am unable to obtain drawings. There are several photographs of the craft in the book *Model Boat Construction* but drawings are not available. Can you suggest a source ?—F.E.B., Birmingham.

A The drawings are not available from the Percival Marshall Plans Service but perhaps readers may be able to suggest a likely source.

Sailing ships' armament

Q Guns in the ships of Nelson's fleets were classified as 18-pounders, 24-pounders and so on. This presumably refers to the weight of the cannon ball, but was there any relation between this weight and the bore of the gun ? Further, can you give me any idea of the penetrating power of a cannon ball at its most effective range ? — T.F., Wirral, Cheshire.

A There was a definite relationship between the bore of the gun and the weight of the ball. For instance a 12-pounder gun had a bore of 4.7 in. but the length of the gun varied from 7 ft to 9 ft and its weight from 21 cwt to 34¾ cwt. The penetrating power of a cannon ball varies, of course, with the range, but so far as is known no figures have been published on the subject.

Bread-and-butter

Q What is meant by the bread-and-butter system of model ship building ? I have often seen references to it in SHIPS AND SHIP MODELS, but have been unable to pluck up the courage to ask an enthusiast !—L.R.S., Dagenham, Essex.

A The bread-and-butter system of building a hull consists of shaping a number of boards to the waterlines corresponding to their positions and gluing them together in correct relationship to each other. When set the projecting edges or corners are cut away in a fair curve so as to leave only a slight trace of the original shape. Thus at each joint the hull shape is correct to the drawing. The spacing of the waterlines must correspond with the thickness of the boards, and is continued above the L.W.L. on load waterline up to the deck level. An alternative system is to arrange the layers to correspond with vertical sections instead of horizontal waterlines. This is known as the buttock lines system of bread-and-butter construction.

Readers' HINTS

HAVING tried to make model steering wheels in 1/32 in. scale with little success —being without a lathe—I hit upon the idea of utilising one of the little threaded tubular sleeves used for adjusting the cable of three-speed cycle gears which are fluted on the outside.

After plugging the tube with plastic wood, I cut off two thin slices and after a little work with a watchmaker's file to emphasise the extensions of the spokes and mounting the pair on a wire spindle, I was able to obtain a tolerable representation of a hand-steering wheel to approximately the required scale.

Anchors (old type) : Making these in very small sizes is a tedious process, but they can be easily fashioned from the balance wheel of a watch or small clock, which will usually provide at least three. If the spokes of the wheel are too slender to allow the drilling of a hole to take the stock, this can be made by twisting a loop of 5 amp fuse wire tightly round the spoke forming the shank and cutting off the ends. A touch of Durofix will make all secure. Discarded balance wheels can usually be obtained from a watch-maker.

Rigging : For fine rigging silk, cotton, fuse-wire and even human hair have been variously recommended, but each has its disadvantages. It will be found that the very fine silk-covered wire taken from an old radio choke or transformer is in many ways preferable. It can be readily stained and can be drawn taut without stretching, and has none of the "whiskers" which in the case of cotton and silk are difficult to get rid of.

E. KILNER BERRY.

COPPER SHEATHING

SILVER PAPER, copper plated by what Jason refers to as the copper-sulphate, jam-jar and torch-battery method, makes good copper sheathing for small-scale models. The hull having been previously undercoated and rubbed down, the copper plating is cut into strips one plate wide, stuck on with Croid and afterwards scored to represent the vertical joins.

The moisture used to remove surplus glue and sticky finger marks causes the copper to take on a pleasing greenish tinge after a few days. I used this method for my *Fame* and found it to be much more effective than copper lacquer where for small models proper sheathing is not possible.

R. E. BRUNSDON.

THREADING CORD

FOR threading cord through blocks, deadeyes, etc., scrape the end of the cord with a razor blade or sharp knife grading it down to about one strand thickness. Dip this in glue and twist the frayed ends together between the fingers and leave to harden. Result : a needle-like point which will thread easily through the finest of holes.

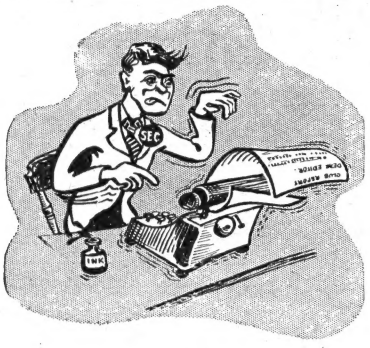
DARYL A. HEWS.

FLOTATION TANKS

I FIND the very light plastic "lemons" containers very useful as flotation tanks. They can be built into any suitable position in a hull and the idea is only a development of the old one of using table tennis balls, which are now too expensive for the job.

The small plug at the end of the nozzle may be prised out and the "lemons" refilled to make a convenient oiler.

S. R. NEWING.



News from the clubs

RAMSGATE and District Model Club's annual meeting last month was the first to be held at the club's new premises at the rear of Effingham Street fire station.

The retiring chairman, J. E. Cole, thanked members for the work that had been undertaken in the planning, layout, painting and decorating of the premises and treasurer R. Cobb reported that the club was in a sound financial position.

The past year had been difficult, but the club nevertheless had done well without the help of extra income from an exhibition—as in previous years.

Secretary E. Church was unanimously elected president and Mrs Church presented the awards to the winners of the annual competitions.

The club welcomes new members and those interested are invited to contact the secretary any Wednesday or Friday at 7.30 p.m.—club evenings. For any member living outside an eight-mile radius of the club's premises there is a reduced subscription.

WEMBLEY S.M.S.

November 12. Club Night ; 26, "Research and building H.M.S. *Shannon*" (38-gun frigate) by G. Hunt.

BRISTOL S.M.C.

November 13. "Ship's boats for the Royal Navy," by E. P. Lover.

CLYDE SHIPLOVERS' and M.M.S.

November 12. Magazine Night ; 28, Open Discussion, Club Night.

HAMMERSMITH S.M.S.

November 6. "Miniatures and Miniaturists," by Edward Bowness ; 20, "Wood polishing and finishing," by A. Farr.

SOUTH LONDON S.M.S.

November 8. Club Night ; 22, "Question Time," conducted by Norman A. Ough.

Secretaries are invited to send brief reports of their meetings and regattas for publication on this page. Reports should be typed for preference and written on one side of the paper only. Details of forthcoming events should be forwarded at least one month before they are scheduled otherwise it may not be possible to include them.

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"SHIPS AND SHIP MODELS"

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